

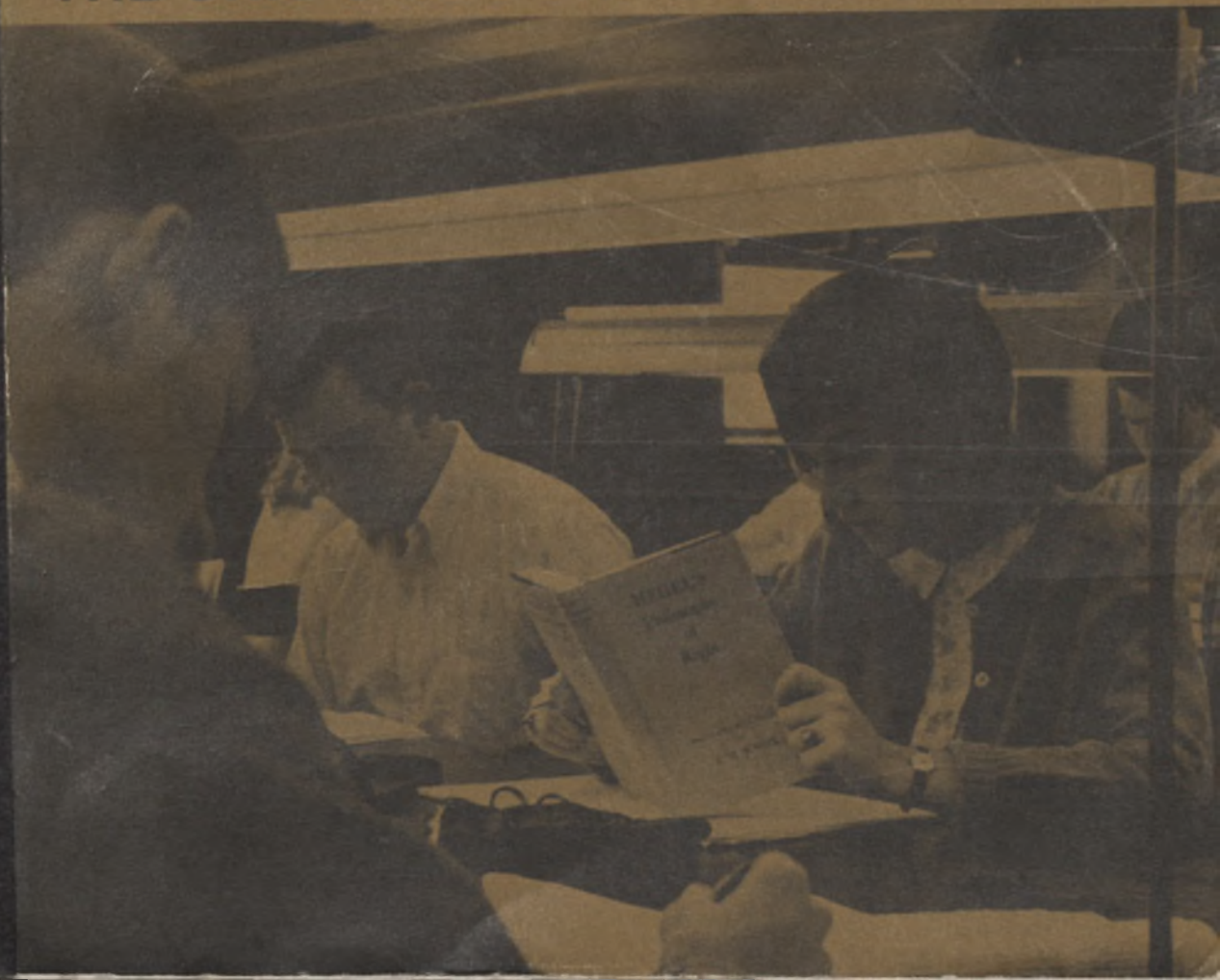
# University Academic Policies and Course Offerings

1967-68 Announcements / Book 14

OFFICE OF THE DEAN  
COLLEGE OF EDUCATION

31 MAY 1967

## THE OHIO STATE UNIVERSITY BULLETIN







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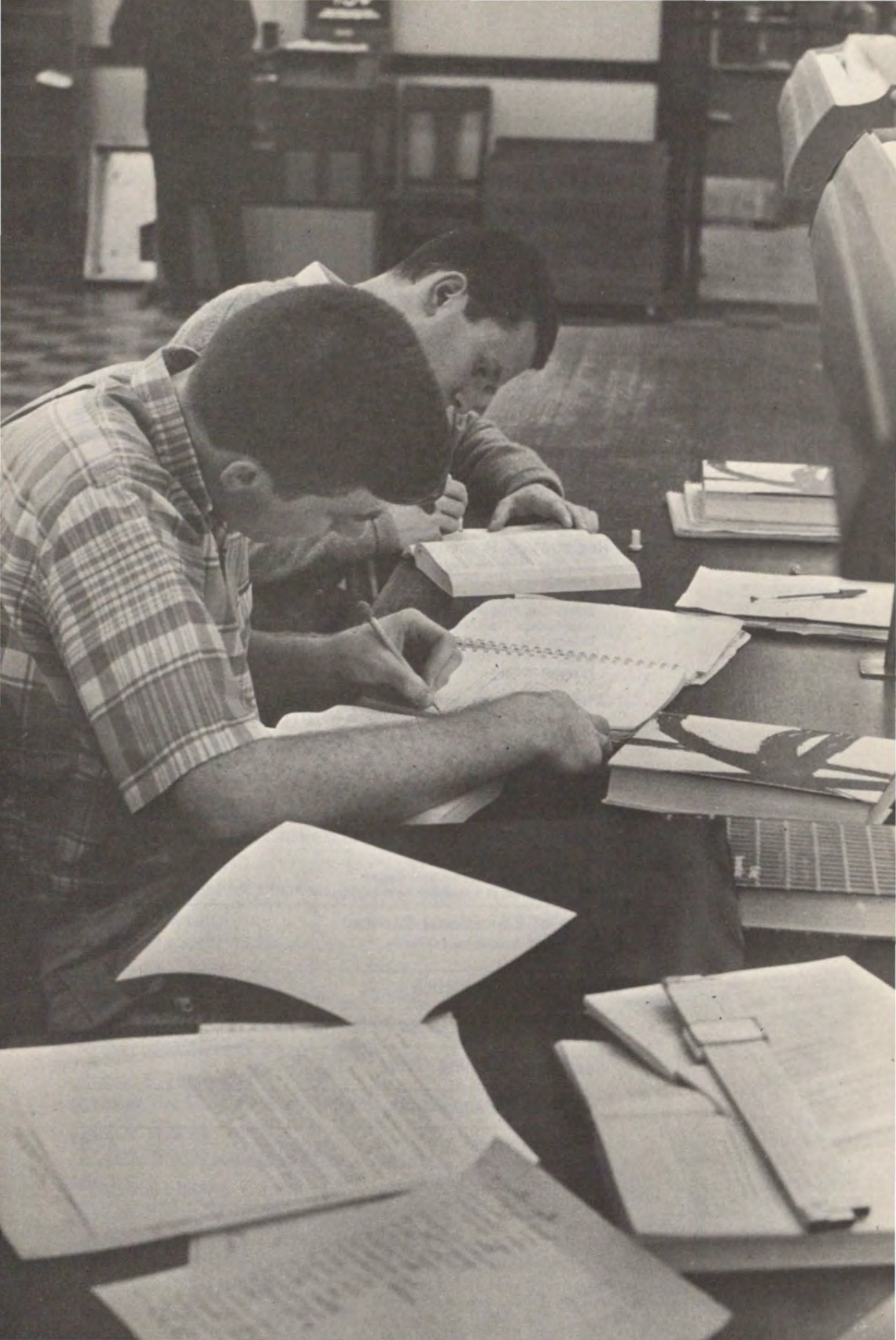
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# University Academic Requirements

## STUDENT RESPONSIBILITY

The student is responsible for knowing his own standing scholastically in reference to the published regulations and standards of the University and of his college.

## THE MARKING AND THE POINT SYSTEM

The grade marks given in all colleges of the University are as follows:

- A Highest quality of passing work; for each credit hour, 4 credit points shall be allowed.
- B Second quality of passing work; for each credit hour, 3 credit points shall be allowed.
- C Third quality of passing work; for each credit hour, 2 credit points shall be allowed.
- D Lowest quality of passing work; for each credit hour, 1 credit point shall be allowed.
- E Failed. This mark indicates (1) that the student has done failing work or (2) that he was absent from the final examination without excuse and his work in the course did not justify a passing mark. Credit for a course in which the Mark E (Failed) has been received can be obtained only by repeating and passing the work in class. (See Rule 37.09.)
- H Honors. This mark shall be used only by the College of Medicine for a student enrolled in the curriculum leading to the degree, Doctor of Medicine, when that student has completed a course in that curriculum with an exceptionally high degree of academic performance. H (Honors) credit shall be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.
- I Incomplete

Section 1. An I (Incomplete) indicates (1) that the work of the student in the course is qualitatively satisfactory, but that for legitimate reasons a small fraction remains to be completed; or (2) that the record of the student in the course justifies the expectation that he will obtain a passing mark, but he has been unavoidably absent from the final examination.

Section 2. The Mark I (Incomplete) shall be reported on the grade card together with the mark which the Registrar is authorized to enter on the student's official record if the work is not completed and a different mark reported to the Registrar in the manner and within the time hereinafter provided. The instructor shall also furnish the Chairman of the Department or the Director of the School with a statement of the work required to be completed.

Section 3. The student must complete the work and the instructor must report the final mark at the earliest possible time, but not later than six weeks following the quarter in which the I (Incomplete) was received. Upon the petition of the student within the six weeks' period, the Executive Committee of the College in which the student is enrolled (or, if not enrolled, of the College of last enrollment) may for good reason allow a student additional time in which to complete the work. Generally, this shall not be longer than the end of the quarter following the quarter in which the I (Incomplete) was received. Any decision of the Executive Committee extending the period shall set forth the time in which the student shall complete the work and a copy of the decision shall be forwarded to the Registrar.

Section 4. As soon as the incomplete work has been made up, the instructor, or in the case of his absence from the University, the Department Chairman or the Director of the School, shall file the proper mark in the Registrar's Office. Until such time as the final mark is recorded, the credit hours in the incomplete course shall not be counted or considered for any purpose except that of men's intercollegiate athletic eligibility.

Section 5. In no case shall a student who has received the mark I (Incomplete) be permitted to repeat the course in which such mark was received until such time as the I (Incomplete) has been removed in the manner hereinbefore provided, and then only in such cases as fall within Rule 37.09.

- P Progress. This mark indicates that the student has shown satisfactory progress in courses that extend over more than one quarter. Until such time as a final mark is recorded, the credit hours in a P (Progress) course shall not be counted for any purpose.
- R Audit. This mark indicates that the student has Registered to audit the course. No credit hours shall be awarded for this mark. (See Rule 37.11.)
- S Satisfactory. This mark shall be used as a final mark only for (1) a graduate student who has completed satisfactorily his thesis or dissertation research, (2) a graduate student who has completed satisfactorily a special problem or minor problem course in which the instructor works directly with the individual graduate student,

and (3) a student enrolled in the College of Medicine in a curriculum leading to the degree, Doctor of Medicine, when that student has completed satisfactorily a course in that curriculum. A student who would be entitled to the mark of S (Satisfactory) if he had completed his work satisfactorily but who does not complete his work satisfactorily shall receive the mark of E (Failed). S (Satisfactory) credit shall be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.

- T Temporarily excused. This mark applies only to Military, Air or Naval Science, Physical Education or Hygiene. No credit hours shall be awarded to a course in which a student received a T (Temporarily excused) mark.
- X Permanently excused. This mark applies only to Military, Air or Naval Science, Physical Education or Hygiene. No credit hours shall be awarded to a course in which a student received an X (Permanently excused) mark.

#### EM Examination

Section 1. This mark indicates credit given to students registered in the University on the basis of examinations taken prior to or after admission to the University. The level of achievement which must be demonstrated by the student on these examinations in order to receive Em (Examination) credit shall be determined by the Department or School in which the course for credit is being given is taught. This credit, up to a maximum of forty-five quarter credit hours, shall be assigned only upon the authorization of the Chairman of such Department or the Director of such School and with the approval of the Executive Committee of the College in which the student is registered. Additional examination quarter credit hours may be assigned in the same manner but only with the prior approval of the Faculty Council.

Section 2. Examination credit shall not be given to a student for a course in which he has received a mark at this University. No credit points are allowed for courses in which a mark of Em (Examination) is given.

- K Credit. This mark shall be used for work credited from other institutions and service schools and by the Director of Admissions only. K credit shall be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.

### REPETITION OF COURSES

A student who has received a mark of E (Failed) in a required course at this University may repeat the course for credit only as provided in Faculty Rule 37.07. A stu-

dent who has received a mark of E (Failed) in any other course at this University may repeat the course for credit at his option.

An undergraduate or professional student who has received a grade of D (Lowest quality of passing work) in a course at this University may repeat the course for credit *only* upon the recommendation of the Executive Committee and with the approval of the Dean of his College. A graduate student as defined in Faculty Rule 41.03, may, when approval is given by an adviser, repeat for credit any course in which he has received a grade of D (Lowest quality of passing work).

A student who has received a grade of A (Highest quality of passing work), B (Second quality of passing work), or C (Third quality of passing work) in a course taken at this University or elsewhere may repeat the course only as an auditor, upon receipt of permission of the Chairman of the Department or Director of the School and the Dean of his College.

A student who has audited a course may subsequently repeat the course for credit with the permission of the Executive Committee of his College.

The credit hours for a repeated course shall in no case be counted more than once in meeting graduation requirements.

### REMOVAL OF FAILURE IN REQUIRED COURSE

A student is responsible for repeating in class, at his first opportunity, a required course in which he has failed, unless the Executive Committee of the College authorizes a substitute course.

### ALTERATION OF MARKS

At the close of each quarter, the Registrar's office notifies each student by mail of the marks earned during the quarter. These marks become a part of the official record of the student and are not subject to change except upon official authorization of the chairman of the department or director of the school and the dean of the college. Such changes shall be made only when a clerical error has been discovered.

### THE POINT-HOUR RATIO

A student's academic standing for a quarter is expressed by his point-hour ratio. This ratio is determined by dividing the total number of points earned by the total



number of credit hours scheduled or undertaken. Courses graded H, I, P, R, S, T or X are not included in the computations. The following is an example: A = 4.0, B = 3.0, C = 2.0, D = 1.0, E (Failed) = 0.

	HOURS	GRADE	POINTS
Course No. 1	5	A	20
Course No. 2	3	C	6
Course No. 3	(3)	I	
Course No. 4	3	E	0
Course No. 5	3	B	9
	<hr/> 14		<hr/> 35

Point-hour ratio: 2.50

When the final grade on Course No. 3 is recorded, the points and hours will be included in the computation of the student's point-hour ratio. When a student has a record for two or more quarters he will have a cumulative point-hour ratio determined by dividing the total points earned by the total hours undertaken.

## UNIVERSITY CLASS RANKING SYSTEM

The class standing of students in all the undergraduate colleges is determined on the basis of total credit hours completed and recorded as follows:

RANK	EARNED CREDIT HOURS	SCHEDULE CARD CODE
Freshman	0- 48	1
Sophomore	49- 97	2
Junior	98-146	3
Senior	147-195	4
Fifth Year	196 and more	5

Students enrolled in the professional divisions or colleges of Allied Medical Services, Dentistry, Education-Professional, Engineering-Professional, Law, Medical Dietetics, Medicine, Nursing, Occupational Therapy, Optometry, Pharmacy and Veterinary Medicine begin their ranking over again, as follows:

RANK	SCHEDULE CARD CODE
First Year	1
Second Year	2
Third Year	3
Fourth Year	4

Should there be any doubt in a student's mind concerning the correctness of his ranking in the professional divisions and colleges, he should consult with the division or college concerned.

Students enrolled in the Graduate School receive the rank of either M (Master's) or P (Ph.D.).

## MINIMUM SCHOLASTIC REQUIREMENTS

These requirements shall apply only to undergraduate students. The academic standards controlling warning, probation, and dismissal of professional and graduate students shall be established by rule by the faculties of the college in which the professional student is registered, or of the Graduate School if the student is a graduate student.

The promulgation of these rules, and their amendment or repeal, shall be subject to the approval of the Board of Trustees.

A transfer student from another university who is admitted to advanced standing in this University shall be treated as though his entire residence had been at this University, but his point-hour ratio will be computed only upon work done at this University.

Admission to quarters beyond the first quarter shall be conditioned as follows:

1. To the second or third quarter, attainment of a minimum point-hour ratio of 0.75 for the immediately preceding quarter;
2. To the fourth, fifth, or sixth quarter, attainment of a minimum cumulative point-hour ratio of 1.70 at the end of the immediately preceding quarter, or of a point-hour ratio of 2.00 or better, on a minimum of 12 quarter hours, for the quarter immediately preceding;
3. To the seventh quarter, attainment of a cumulative point-hour ratio of 1.90 at the end of the sixth quarter;
4. To the eighth or any subsequent quarter, a minimum cumulative point-hour ratio of 2.00 at the end of one of the student's two immediately preceding quarters.

## WARNING AND PROBATION

Any student subject to the provisions of the minimum scholastic requirements rule who fails to achieve a point-hour ratio of 2.00 on the work of any quarter shall be warned and his parents or guardian notified by the University Registrar on behalf of the Dean of his college.

Any student subject to the provisions of the minimum scholastic requirements rule whose cumulative point-hour ratio is below 1.70 at the end of the third, fourth, or fifth quarter, or below 2.00 at the end of the sixth or any subsequent quarter shall be placed on probation unless dismissed pur-

suant with the provisions of the rule. Such probation shall continue until the required cumulative point-hour ratio has been achieved or the student has been dismissed pursuant to the rules regarding dismissal. Other conditions of probation may be established by the Administrative Council. The student and his parents or guardian shall be notified of probationary status by the College in which he is registered. Such notifications shall include a clear statement of what shall be required of the student academically if he is to avoid dismissal.

## DISMISSAL

1. Failure to meet the minimum scholastic requirements shall result in dismissal from the University as of the end of the quarter in which such failure occurs.
2. If at any time the preparation, progress, or success of a student in his assigned work is determined to be unsatisfactory, the Executive Committee of the College in which he is registered shall be empowered to dismiss him from the University.
3. Notice of dismissal from the University shall be sent by the Dean of the College in which the dismissed student is registered to the student and to the student's parents or guardian.
4. A dismissal or failure to meet minimum scholastic requirements may be waived for educationally sound reasons through special action of the Executive Committee of the College in which the student is registered.
5. Any student who may be reinstated by the Executive Committee of his College following dismissal shall be subject to such special requirements as may be determined appropriate by the Executive Committee. If the performance records of any reinstated student do not meet the conditions specified at the time of reinstatement, then the Executive Committee shall consider all the facts in the student's case and determine whether dismissal by special action or a waiver for another quarter is indicated.

# Graduation Requirements

## REQUIRED COURSES

Each college has certain requirements which must be met by every student seeking to earn a degree in that college. The specific course requirements will be found, for each of the curricula administered by each college, in the specific college volumes of this *Bulletin* series. In addition to these, the University has established certain requirements outlined below.

### REQUIRED COURSES FOR MEN AND WOMEN STUDENTS

All students entering any of the undergraduate colleges including Allied Medical Services, Nursing and Dental Hygiene are required to schedule:

1. One hour of physical education each quarter offered until a total of three quarters of credit has been earned.
2. One hour of health education during *one of the first three quarters offered*, and thereafter if necessary, each quarter until one credit hour has been earned.

Transfer to other colleges of this University shall not constitute a waiver of unfulfilled requirements of this rule.

### UNIVERSITY REQUIRED COURSES IN BASIC EDUCATION AND R.O.T.C.

Every curriculum in the following colleges—Agriculture and Home Economics, Arts and Sciences, Biological Sciences, Commerce and Administration, Education, and Engineering—includes a body of courses designed to assure that each student is given the opportunity to become acquainted with the three basic areas of academic study: the humanities, the social sciences, and the natural sciences. The objectives of this part of the curriculum, as set forth by the University Faculty, are as follows:

#### HUMANITIES

The objectives are to introduce the student to his possibilities for continuing growth as a thoughtful and reasoning person, sensitive to the aspirations and attainments of others; to acquaint him to at least some degree with the treasures of human thought and expressions at his command; and to develop in him a continuing desire to have his full share of the legacy of all creative efforts.



### SOCIAL SCIENCES

The objectives are to make sure that the student has at least a basic understanding of the fundamental ideas upon which our society has been built, the social institutions through which these ideas have been given effective meaning, and the never-ending process of development through free choice limited only by concern for the rights and well-being of others. Emphasis will be put upon the values of a free society and the responsibility of the individual for participating actively in the issues and decisions of the day.

### NATURAL SCIENCES

The objectives are to acquaint the student with the kinds of problems which lend themselves to possible solutions through the use of science, to introduce him to differing scientific techniques through significant illustrative experience, to give him a sense of perspective in the development of science, and to develop in him an understanding of the basic community of all scientific disciplines.

In addition to the above requirements, all students enrolled in these colleges will elect one of the following requirements:

*Either*

1. Twelve hours of military or air science, or 15 hours of naval science plus 5 hours of basic general Psychology or if in the naval advanced program, 18 hours of naval science.

*Or*

2. One of the academic options as stipulated in this *Bulletin* series for the particular college or school in which the student is enrolled.

Students transferring from other colleges or universities can meet part or all of the above requirements with approximately equivalent courses. Credits for each transfer student shall be reviewed by the Director of Admissions and the appropriate College and credit in all courses which meet the spirit of these basic education requirements shall be accepted.

### EXCUSES FROM REQUIRED COURSES

The college in which a student is enrolled may excuse a student from course requirements imposed by that college.

The requirements of physical education and health education are University requirements. The President and the departments of instruction directly concerned may grant by Faculty Regulation excuses from these courses.

### GRADUATE CREDIT FOR UNDERGRADUATES

An undergraduate may work towards graduate credit provided:

1. Three years of course work have been completed.
2. The credit for the course is not necessary to complete baccalaureate degree requirements.
3. Point-hour ratio is 2.7 or above.
4. Permission is secured from:
  - a. The course instructor.
  - b. The Secretary of the student's college.
  - c. The Office of the Graduate School before he registers for graduate courses.

A grade of B or better must be achieved, and the credit for these courses can not be used until the student has been admitted to the Graduate School, and until the department in which he wishes to specialize accepts the work. Fifteen quarter hours of such work is the maximum which may be counted toward an advanced degree.

## Organization of Instructional Units

For conveniences of administration, the instructional units—colleges, schools, departments, and divisions—of the University are grouped as follows:

### COLLEGE OF AGRICULTURE AND HOME ECONOMICS

#### Departments

Agricultural Economics & Rural Sociology  
 Agricultural Education  
 Agricultural Engineering  
 Agronomy  
 Animal Science  
 Dairy Science  
 Dairy Technology  
 Horticulture & Forestry  
 Plant Pathology  
 Poultry Science

#### School

Home Economics

### COLLEGE OF ARTS AND SCIENCES

#### Departments

Astronomy  
 Chemistry

Classics  
 English  
 Geodetic Science  
 Geology  
 German  
 History  
 Linguistics  
 Mathematics  
 Philosophy  
 Physics  
 Political Science  
 Romance Languages & Literature  
 Slavic Languages & Literature  
 Speech

*Schools*

Journalism  
 Optometry

*Divisions*

Asian  
 Comparative Literature & Languages  
 Computer Science

**COLLEGE OF BIOLOGICAL SCIENCES**

*Departments*

Biochemistry  
 Botany  
 Microbiology  
 Zoology & Entomology

*Division*

Biophysics

**COLLEGE OF COMMERCE AND ADMINISTRATION**

*Departments*

Accounting  
 Anthropology  
 Business Organization  
 Economics  
 Geography  
 Sociology

*School*

Social Work

**COLLEGE OF DENTISTRY**

*Divisions*

Dentistry  
 Dental Hygiene

**COLLEGE OF EDUCATION**

*Department*

Psychology

*Schools*

Art  
 Education  
 Music

**COLLEGE OF ENGINEERING**

*Departments*

Aeronautical-Astronautical Engineering  
 Aviation

Ceramic Engineering  
 Chemical Engineering  
 Civil Engineering  
 Electrical Engineering  
 Engineering Graphics  
 Engineering Mechanics  
 Industrial Engineering  
 Mechanical Engineering  
 Metallurgical Engineering  
 Mineralogy  
 Photography  
 Welding Engineering

*Division*

Information Sciences

*School*

Architecture

**COLLEGE OF LAW**

**COLLEGE OF MEDICINE**

*Departments*

Anatomy  
 Medicine  
 Medical Microbiology  
 Obstetrics & Gynecology  
 Ophthalmology  
 Otolaryngology  
 Pathology  
 Pediatrics  
 Pharmacology  
 Physical Medicine  
 Physiological Chemistry  
 Physiology  
 Preventive Medicine  
 Psychiatry  
 Radiology  
 Surgery

*Schools*

Allied Medical Services  
 Nursing

**COLLEGE OF PHARMACY**

**UNIVERSITY COLLEGE**

**COLLEGE OF VETERINARY MEDICINE**

*Departments*

Veterinary Anatomy  
 Veterinary Medicine  
 Veterinary Parasitology  
 Veterinary Pathology  
 Veterinary Physiology & Pharmacology  
 Veterinary Preventive Medicine  
 Veterinary Surgery & Radiology

**GRADUATE SCHOOL**

**OTHER DEPARTMENTS**

Air Science  
 Military Science (Army)  
 Naval Science  
 Physical Education



# Registration Procedures

## SCHEDULE CARDS FOR REGISTRATION

*Students in residence:* Schedule cards are distributed to undergraduate and professional students by the student's College office. Graduate students' schedules are distributed by the Registrar's office.

*All new students:* Schedule cards are distributed by the Registrar. Students formally schedule their programs of study for one quarter at a time; they should, with their advisors, informally plan several years ahead.

## PRESENTATION OF STUDY PROGRAM

*Students in residence:* Spring and Summer students present schedule requests for Autumn on or before August 30th.

For all other quarter deadline dates, consult the University Calendar.

*Penalties:* \$5 will be assessed for the first day and \$1 for each succeeding day past the deadline date to a maximum of \$10.

## CHANGES IN APPROVED SCHEDULES

*To add courses:* Upon receipt of approved schedules through the first five full class days after the start of the quarter—Permission of College office.

After the fifth full class day after the start of the quarter—Permission of instructor, department chairman, and dean of the student's college.

*To drop courses:* Withdrawal from a course after the receipt of approved schedules requires the permission of the student's college office and is permitted only to adjust unavoidable errors in registration, failure in prerequisite courses, official changes in publicized quarterly offerings, or other conditions beyond the control of the student.

For additional information refer to: *Withdrawal from Course Procedures*, p. 00.

*Time changes:* Permission of department only.

## SCHEDULING PROGRAMS

Students should consult with counselors or advisors in their College offices prior to the release of schedule request cards to plan their selection of classes. The *Academic Planning Guide* found in the last section of

this volume is designed to assist in these consultations.

*Caution:* Students expecting to fulfill requirements by taking courses in the evening or during the Summer Quarter are cautioned that the offerings during those periods are limited. In preparing schedules, such students should consult the current quarterly *Master Schedule*.

## INTER-COLLEGE TRANSFERS

Students in good standing in one college of the University who wish to transfer to another college within the University should consult a counselor in their new college before completing the transfer and before submitting a schedule card for approval. The official transfer from one college to another is made by application to the Admissions Office.

Students who have been denied further registration in one college of the University may not be admitted to another college on this campus except by petition approved by the Executive Committee of the college they wish to enter.

A transfer to an undergraduate college of the University must be completed not later than 10 days before the first day of classes of the quarter the transfer becomes effective.

## RESCHEDULED COURSES

Each department is authorized to administer placement examinations to students enrolling for the first time in a course offered by that department. Following such placement examinations, a department may instruct the Secretary of the College in which the student is registered to change such student's enrollment either to a more elementary or to a more advanced course.

If, within the first four weeks of a quarter, a student's previous preparation is demonstrably inadequate for a course in which he originally enrolled, the department concerned is empowered to instruct the college in which that student is registered to remove the course from the student's schedule and replace it with a more suitable one.

## CREDIT FOR RESCHEDULED COURSES

Credit for all rescheduled courses resulting from action under the rescheduled course rule shall count toward the fulfillment of graduation requirements unless: (a) the student has previously earned Uni-

versity or College Credit (or in a foreign language, either university, college or secondary school credit) in a course having substantially the same subject matter content, or (b) the substituted course is one which the department, with the approval of the Council of Instruction, has established for students with inadequate preparation for college-level courses of that department.

### **PAYMENT OF FEES**

Fees are due and are to be paid as soon as fee cards have been received from the Registrar. Early payments are encouraged for the convenience of both the student and the University.

For additional information, see *Fees and Expenses* below.

## **Withdrawal Procedures and Policies**

### **WITHDRAWAL FROM COURSE**

Withdrawal from a course after the start of the quarter is permitted only to adjust for unavoidable errors in registration, failure in prerequisite courses, official changes in publicized quarterly offerings, or other conditions beyond the control of the student. The student is expected to plan his program carefully before scheduling and then register for the specific courses he intends to pursue for the entire quarter. Deviations from a normally required program should be discussed with a counselor preferably before scheduling and definitely no later than the beginning of the quarter.

A request for withdrawal from a course because of emergency circumstances beyond the student's control, such as severe illness or accident or comparable situation, must be discussed with a counselor in the student's college office.

If the request is approved, a change ticket issued at the college office must be submitted within 24 hours at the Registrar's Office for a schedule change.

### **COMPULSORY COURSE WITHDRAWAL**

An enrollee of any undergraduate college who fails to attend a scheduled course before Saturday noon of the first week of classes, may, at the option of the department, be disenrolled immediately from said course. In the event a department chooses to take such action, it will be the responsibility of the department chairman to notify the student's college office. A change ticket removing the course from the student's schedule will be prepared in the college office, and a copy shall be forwarded to the Office of the Registrar (Faculty Rule 41.07).

### **WITHDRAWAL FROM THE UNIVERSITY**

A student who desires to withdraw from the University must apply to the Dean of his College for permission to withdraw. If the student severs his connection with the University at any time during the quarter without communicating with the Dean of his College, he will be marked as having failed in all of his courses for the quarter.

No student may withdraw from the University within two weeks of the beginning of examinations unless the reports of his instructors show that his record to date is satisfactory.

When a student withdraws from the University during a quarter his parent or guardian shall be notified of the fact by the Secretary of the College (Rule 47.01).

## **Fees and Expenses\***

All fees are due and payable as a part of the student's registration before the day designated in the University Calendar. No person should come to the University for registration without money sufficient to cover all of his fees and deposits.

No student will have any privileges in the classes or laboratories until all fees and deposits are paid. Extension of the deadline for payment of fees will be given only in extreme emergency and then only upon the approval of the Executive Dean for Admissions and Registrations.



## COST OF A YEAR'S WORK

The total cost of a year's work — three quarters—will depend upon the course pursued. In some courses, considerable material is used by the student and this must be paid for by him. The cost of books is an item which varies with the course.

In order to furnish information, there is listed below an estimate of the average payments required by the University for the freshman year and the estimated cost for room and board. Fees to the University are paid prior to the beginning of each quarter.

## ESTIMATE OF EXPENSES FOR THE FRESHMAN YEAR

*Application Fee	\$10
*Acceptance Fee <sup>1</sup>	25
**Instruction and Student Services Fee	450
Books and Instruments (average)	75
Laboratory and other Deposits (variable, returnable in part) and special fees	50
Room and board in Residence Halls (average)	825
<b>TOTAL</b>	<b>\$1435</b>

\* Non-refundable and not applicable toward any other fee.

\*\* Non-residents add \$558 out-of-state tuition.

Basic ROTC uniforms are furnished by the government. A deposit of \$40 is required except for Naval ROTC students. This deposit will be refunded at the time uniform is returned to the Military Science Department.

<sup>1</sup> Formerly referred to as Orientation and Registration Fee.

ALL FEES ARE SUBJECT TO CHANGE.

In order to meet the necessary expenses of registration, books, required deposits, and one quarter's payment for room and board, the beginning out-of-town student should come prepared to spend \$500 to \$600 during the first 10 days of a quarter, \$186 more if he is not a resident of Ohio.

## STUDENT PERSONAL EXPENSE FUNDS

The incoming student will save himself much time and trouble by taking a few simple precautions in regard to his personal expense money. The student should bring enough cash to cover expenses for several days. If he does not wish to carry cash, he should use travelers checks, as they are readily cashed. If he does bring a check, it should be in the form of a bank draft or cashier's check. Any checks that

are for the payment of fees must be drawn up for the exact amount of the fees.

The following facts concerning the cashing of checks should be borne in mind by parents and prospective students:

1. The Ohio State University does not cash checks.
2. Checks for fees will be accepted by the University, but only when the check is drawn for the exact amount of the fees.
3. Banks do not cash checks for strangers unless the check is endorsed by a customer of the bank or some person of known responsibility. This rule applies to cashier's checks, bank drafts, and certified checks.

The student who intends to use a checking account will find that an account in Columbus will be of more value than an account at home or in some other city. An account with a Columbus bank will provide a safe place for depositing funds, will help create a local credit standing, will furnish a means of depositing and cashing checks, and will help the student to understand banking practices.

## SPECIAL FEES — PENALTIES

### FEES FOR LATE FILING OF SCHEDULE CARDS

A student who fails to file his schedule card within the required time must pay a penalty of \$5 for the first day and \$1 for each succeeding day of delay, the maximum fine being \$10.

### FEE FOR CHANGES IN APPROVED SCHEDULE CARDS

Changes in subjects on approved schedule cards will be made only upon the approval of the student's College office and the payment of \$1 for each change involved unless such payment is waived by the College office approving the change.

### PENALTY FOR PAYMENT OF FEES WITH BAD CHECK

Any student presenting a check for fees which is returned because of insufficient funds will be assessed immediately a penalty of \$10 and his registration cancelled. Additionally, before registering again, the regular penalty for late payment, indicated in the *Fees and Expenses* section, will be assessed.

	OTHER FEES	QUARTER FEE	EACH TERM SUMMER QUARTER
<b>GENERAL FEES (non-returnable)</b>			
Application Fee	\$ 10		
Acceptance Fee	25		
<b>FULL-TIME STUDENTS</b>			
Agriculture and Home Economics		\$150	\$75
Allied Medical Services		150	75
Arts and Sciences		150	75
Biological Sciences		150	75
Commerce and Administration		150	75
Education		150	75
Engineering		150	75
Graduate School		150	75
Nursing		150	75
Dentistry		270	
Dental Hygiene		198	
Law		180**	
Medicine		270	
Optometry		188	
Pharmacy		156	
University College		150	75
Veterinary Medicine		190	
<b>PART-TIME STUDENTS</b>			
For courses totaling six or fewer hours		75	
Students enrolling for more than six hours which extend over more than a single term shall be assessed full fee		150	
The minimum fee for a student registered in Summer Quarter			75
<b>NON-RESIDENT FEE</b>			
In addition to the above fees, a full-time non-resident student pays		186	93
In addition to the above fees, a part-time non-resident student pays		93	
<b>OFF-CAMPUS BRANCHES FEES</b>			
Fees are the same as those charged on the main campus			
<b>SPECIAL UNIVERSITY FEES</b>			
<b>Laboratory Fee</b>			
Instructors shall not permit a student to engage in laboratory work unless the student has shown a receipt from the Bursar for the fees required in the course		Varies	
<b>Military Uniform Deposit</b>			
Deposit for military uniform for freshmen (Army & Air Force only)		40	
<b>Other Fees</b>			
In the case of students registered and receiving college credit for Short Courses, Workshops, Geology Field Trips, Conservation Laboratory, and those of a similar nature, the fee assessed will be in accordance with the fees for the undergraduate colleges.		Varies	
<b>Fee Assessed Certain Professional Students</b>			
In the case of students in the professional colleges registered and receiving college credit for undergraduate non-professional courses, or other special assignment, the fee assessed for Summer Quarter will be in accordance with the fees for the undergraduate colleges.		Varies	
<b>Health Insurance</b>			
All international students are required to enroll each quarter for Student Health Insurance		\$ 8	
<b>ABSTRACT FEES</b>			
Abstracts for Masters' theses		10	
Abstracts for Ph.D. dissertations		35	

\*\* Includes Law Library Fee and Law Review, but does not include the Student Bar Association fee of \$15 which is assessed the first quarter of a student's enrollment.



The abstracts of Masters' theses and abstracts of Ph.D. dissertations are micro-filmed and published in the form of a journal at the end of each quarter. A special fee for editing, printing, and binding or microfilming these abstracts is required for each person receiving such a degree from this University. This fee must be paid not later than one week before the Commencement date on which the candidate expects to receive his degree.

## RETURN OF FEES ON WITHDRAWAL

Rule 43.09 of Rules for the University Faculty, a rule initiated by the Board of Trustees, states:

*Section 1.* Fees (except for the Application and Acceptance fees) are returnable in part if a student withdraws from the University for any cause other than at the request of the University and if such withdrawal is made within the period of time specified in Section 2 or Section 3 of this Rule. The Application fee and the Acceptance fee are not returnable irrespective of the reason for withdrawal.

Students dismissed from the University or withdrawing at the request of the University are not entitled to any refund of fees.

*Section 2.* Quarter fees will be refunded according to the following schedule:\*

- a. From the date on which the fees were paid through the sixth day on which classes are scheduled . . . full fees less \$10.00.
- b. After the sixth day on which classes are scheduled through the twelfth day on which classes are scheduled . . . 75% of fees paid.
- c. After the twelfth day on which classes are scheduled through the twenty-fourth day on which classes are scheduled . . . 50% of fees paid.
- d. After the twenty-fourth day on which classes are scheduled . . . no refund of fees paid.

*Section 3.* Term fees will be refunded according to the following schedule:\*

- a. From the date on which fees are paid through the sixth day on which classes are scheduled . . . full fees less \$10.00.
- b. After the sixth day on which classes are scheduled through the ninth day on which classes are scheduled . . . 75% of fees paid.
- c. After the ninth day on which classes are scheduled through the twelfth day

on which classes are scheduled . . . 50% of the fees paid.

- d. After the twelfth day on which classes are scheduled . . . no refund of fees paid.

\* Schedule includes Saturdays.

*Section 4.* In order to be eligible for the listed refund, the student must present to the Bursar—within the time listed above—written permission to withdraw, signed by the Dean of his College and must surrender his fee card to the Bursar.

*Section 5.* If exceptional conditions prevent the presentation of authorization to withdraw at the Bursar's Office at the proper time, and if the student has not been able to attend classes during this time, the case should be referred for decision to the Executive Dean for Admissions and Registrations.

*Section 6.* No fees will be returned in case of withdrawal of students until 30 days have elapsed from the date of withdrawal.

*Section 7.* If fees are paid under mistake of law or fact, they are returnable in full.

*Section 8.* Fees are not returnable except as provided in this Rule 43.09.

### Laboratory Fees

These fees are considered as an integral expense of the course and will be automatically refunded according to and as part of the Return of Fees on Withdrawal schedule as discussed above.

### Transcript Fee

Every student is entitled to one copy of his University record free of charge. There will be a charge of one dollar for each additional copy. The fee should accompany the transcript request.

## RULES GOVERNING NONRESIDENT STATUS

The following rules governing residency status conform with the Ohio Board of Regents Rule No. 2 as amended July 16, 1965, and have been developed in advisement with special counsel assigned by the Attorney General of Ohio. These rules were approved by the Board of Trustees at their meeting of November 11, 1965.

1. *Rule as to nonresident fees.* Every student who is not a resident, as defined below, of the State of Ohio, is required to pay nonresident tuition

fees in addition to other University fees.

2. *Registration.* The burden of registering under proper residence is placed upon the student. If there is any question as to residence, the matter should be brought to the attention of the Registrar and passed upon prior to original enrollment.

## POLICIES IN AID OF RESIDENCE DETERMINATION

### GENERAL POLICY

The status of a student as a resident or a nonresident of the State of Ohio will be determined as of his original enrollment at The Ohio State University. In general, that status will remain the same throughout his attendance at the University, although such status may be reviewed upon petition. In those cases where there has been a break in a student's attendance at the University, the beginning of the last enrollment may be considered by the Registrar as the student's "original enrollment" for the purpose of residence determination. Two basic conditions must exist for Ohio residency: first, it is necessary that the adult student or the parents or guardian of a minor student have been in the State a minimum period of one year prior to the original enrollment; and second, that there is an evident present intent to remain in the State indefinitely.

### DEFINITIONS

An "Ohio resident" is a student subject to the following requirements:

- A. An adult student, 21 years of age or older, is considered to be an Ohio resident if he has resided in the State for a minimum of twelve consecutive months preceding the date of enrollment and if he has an evident present intent to remain in the State indefinitely, provided that his residence in Ohio has not been for the purpose of attending a college or university.
- B. A minor student is considered to be an Ohio resident if his parents or his legal guardian have resided in the State for a minimum of twelve consecutive months preceding the student's enrollment and if the parents' or guardian's residence during that

year has been maintained with the evident intent to remain in the State indefinitely, provided that such action has not been taken for the purpose of gaining residence status for the minor student.

- C. For the purpose of determining residency requirements under these rules, a person will be considered a minor until he has reached his twenty-first birthday even though such person may have been emancipated. Married minors, however, are entitled to establish and maintain their own residency pursuant to definition A.
- D. The residency of a married woman is determined by the rules which would apply to her husband if he would seek enrollment; except that a woman who has enrolled as an Ohio resident may continue to be considered an Ohio resident upon marrying a non-resident, provided her enrollment is continuous and she continues to live in the State of Ohio.
- E. A woman who is legally separated from her husband may establish her own residency pursuant to definition A.
- F. The residency of any student may be re-evaluated for each term of re-enrollment. At such time, any student who has not been classified as an Ohio resident, and requests to be so classified, must prove that has met requirements for Ohio residency as stated in these rules.
- G. A student who has been classified as an Ohio resident shall be considered to have lost his residency in this State twelve consecutive months after he, or in the case of a minor, his parents or legal guardian move to another state with intention of remaining there and making such state their place of residence, notwithstanding the fact that he or they may entertain an intention to return at some future period.
- H. Aliens admitted to this country on immigrant visas may establish Ohio residence in the same manner as any other nonresident pursuant to definition A.
- I. Service men and women who enter the service from another state and their dependent children shall be classified as Ohio residents during the period of their active duty assignment in Ohio.



# Office of Educational Services

## OFFICERS

John T. Mount.....	Vice President
<i>Office: 201 Administration Building—293-6344</i>	
Bruce C. Harding.....	University Archivist
<i>Office: 019 Law Building—293-2409</i>	
Ronald B. Thompson.....	Executive Dean for
Admissions and Registrations	
<i>Office: 104 Administration Building—293-7921</i>	
Ted R. Robinson.....	Director of Admissions
<i>Office: 102 Administration Building—293-1321</i>	
Dean O. Clark.....	Registrar
<i>Office: 203 Administration Building—293-7941</i>	
Robert W. McCormick.....	Associate to Vice President
for Educational Services	
<i>Office: 109 Administration Building—293-4209</i>	
Richard B. Hull.....	Director of Telecommunications Center
<i>Office: 2470 North Star Road—293-6641</i>	
William H. Ewing.....	Coordinator of Radio-TV
Instruction Office	
<i>Office: 19 Derby Hall—293-6751</i>	
Thomas E. Miller.....	Director of Teaching Aids Laboratory
<i>Office: 3 Lord Hall—293-7335</i>	
Hal J. Basham, Lt. Colonel.....	Professor of Air Science
<i>Office: 300 Military Science Building—293-5441</i>	
Arthur D. von Rohr, Colonel.....	Professor of Military
Science	
<i>Office: 204 Military Science Building—293-6075</i>	
Wilbur J. Wehmeyer, Captain.....	Professor of Naval Science
<i>Office: 132 Naval Annex, Physical Education Building—293-6015</i>	
John D. Lucas.....	Director of Alumni Records
<i>Office: 4B Alumni House—293-2511</i>	

## DIVISION OF CONTINUING EDUCATION

The Office of the Continuing Education Division is located in Room 109 Administration Building, 190 North Oval Drive. The office is open from 8:00 a.m. to 5:00 p.m., Monday through Friday, and from 8:00 a.m. to 12:00 noon on Saturday.

### HISTORY OF THE DIVISION

The continuing education programs of The Ohio State University have developed gradually over the years. This development has been two-fold:

1. Through non-credit workshops, seminars, and short courses developed and offered by the various colleges, departments and schools and
2. Through the offering of credit course opportunities.

In October of 1961, the Board of Trustees of the University, recognizing the expanding requirements in these areas, gave the formal responsibility for this development to a new administrative division, the Office of Part-time and Continuing Edu-

cation. (The name of this Division was changed in 1965 to the Division of Continuing Education.)

## CREDIT COURSE INFORMATION

### Objectives

The Ohio State University recognizes that there are many adults who desire to pursue university academic credit programs which are not essentially degree oriented but are in many cases related to occupational, professional, or personal purposes and needs.

### Organization

With this objective in mind, adult students (normally 21 years of age or over) are enrolled in the Division of Continuing Education on the central campus or on the branch campuses rather than in one of the undergraduate colleges, the Graduate School or in one of the professional colleges of the University. The Division is responsible for the administration and academic counseling of these students.

## CATEGORIES OF STUDENTS

### Adult Special Students

These are students who desire to take University level credit courses because of personal interests, occupational or vocational upgrading but who are not pursuing a degree or a Public School certification program. They may or may not already have a college degree.

### Transient Students

These are undergraduate students who are pursuing a degree at another college or university and who wish to take courses at this University. They may enroll for one quarter and the credit courses taken are those recommended by the college or university which will award the degree.

### Admission Procedures

Students in the above categories who wish to enroll but who do not anticipate becoming a candidate for a University degree may obtain application materials from the Admissions Office of the University (Ad-

ministration Bldg., 190 North Oval Drive, Columbus, Ohio, 43210). General inquiries should be directed to the Division of Continuing Education.

Students applying for admission will be required to furnish sufficient academic and employment information via the application forms to enable the Division and the Admissions Office to determine eligibility for admission on a sound academic basis.

A student under dismissal from one of the Colleges of the University or from another academic institution will be accepted for admission as an adult student only by action of the Executive Committee of the Division of Continuing Education and the Admissions Office.

#### **FEES, REGISTRATION, AND OTHER POLICIES AND PROCEDURES**

Students enrolled in this Division must comply with the same policies and procedures as regular students. This includes fees, academic standards, and registration procedures.

#### **CURRICULUM**

Students enrolled in this Division may take any undergraduate level course for credit offered by the University provided they have met the individual course prerequisites. Courses may be scheduled either during the day or evening. These course offerings are described in the University Bulletin.

#### **SCHEDULE OF COURSES**

The times at which each course is offered are indicated in the Academic Planning Guide found in the last section of this volume. In preparing schedules, consult the current quarterly Master Schedule which may be secured without charge at the Office of Continuing Education.

#### **Credit**

Students enrolled in this Division will receive full University academic undergraduate credit for work satisfactorily completed.

#### **STUDENTS DESIRING A DEGREE**

Adult students who are candidates for a University degree must be admitted to and registered in one of the University's undergraduate colleges, the Graduate School, or a professional college. Such students should apply to the Ohio State Univer-

sity, Admissions Office, 190 North Oval Drive, Columbus, Ohio, 43210.

Adult students who are registered in this Division as non-degree students and who decide to undertake academic work leading to a degree will be required to file an application for transfer to a degree granting college of the University, and all academic work taken will be evaluated at that time in terms of the proposed degree program. Such students must complete all the qualifications for a degree outlined in the appropriate portion of this Bulletin. The filing of complete credentials will be required at this time.

Adult students enrolled for certification purposes, either on a full-time or a part-time basis must be admitted to and registered in the appropriate college.

#### **WORK AS AN AUDITOR**

Those students who wish to be admitted for the purpose of auditing a given University course may do so after satisfying the appropriate entrance requirements and provided permission of the Professor and the Dean of this Division are secured. There is no reduction in fees for students so admitted and registered.

#### **NON-CREDIT CONFERENCES AND SHORT COURSES**

The Continuing Education Division is responsible for the coordination of all of the non-credit conferences, seminars and workshops developed by the Colleges, Schools and Departments of instruction of the University.

Continuing education is an integral part of the programs of a university dedicated to graduate and professional education. As President Novice G. Fawcett has said: "Knowledge is expanding today with unprecedented rapidity. Men and women in a variety of occupations now must return frequently to the University campus to match their competencies with advances in many fields." In recognition of this concept, the University's Board of Trustees has given approval to a multi-million dollar project, the "Center for Tomorrow," which will house the following areas of University activity—Division of Continuing Education, Telecommunications Center, the Mer-shon Center for Education in National Security, the Division of Alumni Records, and The Ohio State University Alumni Association. This Center will include seminar rooms, auditoriums, and housing and din-



ing facilities for continuing education participants.

During a typical year, more than 110,000 persons participate in continuing education activities sponsored by The Ohio State University. These persons participate in non-credit seminars, workshops, conferences, and other programs sponsored by virtually every instructional unit of the University.

## DEPARTMENTS

### TELECOMMUNICATIONS CENTER

The administrative responsibility for the educational services in the areas of television, radio, and teaching aids is placed in the Office of Educational Services. Questions regarding these areas should be directed to the appropriate officer as listed above.

### AIR SCIENCE

Students interested in seeking a commission in the United States Air Force may qualify by completing either the four-year or two-year Air Force ROTC program. Both programs consist of a curriculum of Aerospace Studies designed to produce a junior officer who is a competent leader and administrator, articulate, knowledgeable and capable of assuming executive duties upon graduation.

#### *The Four-Year Program*

The four-year Aerospace Studies curriculum consists of the General Military Course (GMC) taken during the Freshman and Sophomore years and the Professional Officer Course (POC) taken during the Junior and Senior years. The GMC consists of one classroom hour and one laboratory hour per week each quarter for six quarters. The POC consists of three classroom hours and one laboratory hour per week each quarter for six quarters.

During the Freshman and Sophomore years, students may achieve cadet non-commissioned officer rank. During the Junior and Senior years, students become cadet officers. Each is issued an Air Force Officer's uniform which he keeps upon graduation. During the Junior and Senior year, the student receives \$40.00 per month plus certain other compensations which total over \$1200 during the two years. A limited number of students qualify for Air Force full scholarships which pay all tuition, books, fees, plus \$50.00 per month.

Students in the four-year program attend a four-week summer encampment at an

active Air Force Base, normally between the Junior and Senior year. They are provided round-trip transportation (airline or reimbursement for automobile travel), food, lodging, medical care and pay of \$131.48 per month.

Students enrolled in a five-year college program may be granted non-attendance (leave) status during their third or fourth year.

#### *The Two-Year Program*

The two-year Air Force ROTC program may be pursued by any student, graduate or undergraduate who plans to spend two full years on campus after enrolling. Students enrolled in a four-year college program take the two-year ROTC program during their Junior and Senior year. Students in a five-year college program may take ROTC during any two years following completion of the Sophomore year. During the summer immediately prior to admission to the two-year Air Force ROTC program a student must complete a six-weeks summer encampment at an active Air Force Base. Round-trip transportation, food, lodging, medical care and pay of \$131.85 is provided students attending the six-weeks summer encampment. Students in the two-year program receive the same \$40.00 per month and other compensations received by students in the four-year program.

Students in either the two-year or four-year program who qualify and apply for Air Force pilot training are given, at no extra cost to the student, a university course of flight instruction consisting of 36½ hours of flight in a light aircraft and leading to a private pilot's license.

Students in both two- and four-year programs participate in over-night field trips to Space Flight Centers and Air Force Bases, such as, Cape Kennedy, Florida, Vandenberg Air Force Base, California, and others, as a regular part of the curriculum. Transportation on the field trips is provided in Air Force aircraft.

Upon graduation the student may go directly to active duty or may apply for a delay in his call to active duty for from two to four years to pursue graduate studies. Graduates who go directly to active duty are eligible after one year to apply for graduate study under the Air Force Institute of Technology (AFIT). Officers pursuing graduate studies under AFIT receive full pay and allowances while attending a university as a full-time student.

Completion of 12 quarter hours in either the four-year or two-year Air Force ROTC program will satisfy the additional electives requirement set forth under "graduation requirements" in the undergraduate information section of this bulletin.

Students enrolled formally in the Professional (Advanced) Officer's Course of Air Force ROTC are deferred from Selective Service induction. Students in the General (Basic) Course who express interest in, and are qualified for, Professional (Advanced) Course enrollment may apply for a military deferment. This Deferment, if granted, is effective until completion of a normal undergraduate course of instruction provided the student continues his Air Force ROTC enrollment and maintains satisfactory academic progress toward graduation.

#### MILITARY SCIENCE

In accordance with the Morrill Act, passed in 1862, under which the University was established, military instruction is included in the curriculum. Pursuant to this and through governmental contract, the University established a Senior Division of the Army Reserve Officers Training Corps (ROTC). The Department of Military Science administers this unit and its four year program of instruction. The general objective of the program is to produce junior officers who by their education, training, and inherent qualities are suitable for continued development as officers in the United States Army. Instruction covers military fundamentals common to all branches of the service. The aim is to provide a basic military education and, in conjunction with other college disciplines, to develop individual character and attributes essential to an officer. Upon successful completion of ROTC, the graduate is commissioned as a Second Lieutenant in the United States Army Reserve. Those who are designated as Distinguished Military Graduates may, through application and selection, accept a professional career as a Regular Officer in the United States Army.

The program consists of two parts: The Basic Course extending over the Freshman and Sophomore years and the Advanced Course during the Junior and Senior years. Successful completion of the Basic ROTC course, or credit in lieu thereof for prior equivalent training or service, is a prerequisite for the Advanced Course. Credit toward graduation is nor-

mally given for the Military Science courses on the same basis as for other courses offered in the University.

Enrollment in the Advanced Course is elective on the part of the student but is confined to those selected by the Professor of Military Science. Such selection is based upon grades attained in Military Science, other academic work and upon demonstrated potential in leadership and in other attributes of commissioned officers.

Students formally enrolled in the Advanced Course and those in the Basic Course who express interest in and are qualified for Advanced Course enrollment may apply for a military deferment from Selective Service induction. This deferment, if granted, is effective until completion of normal undergraduate course of instruction provided the student continues his Army ROTC enrollment and maintains satisfactory academic progress toward graduation.

Students selected for and formally enrolled in the Advanced Course are paid \$40 a month, exclusive of a six-week period of summer camp, during which they will receive approximately \$180 plus travel expenses to and from camp. An officer style "Army Green" uniform is furnished each student. This uniform becomes the property of those students receiving a commission. Upon graduating and receiving a Reserve commission the graduate may expect to serve on active duty for a two year period and remain a member of a Reserve Component of the Army until the sixth anniversary of receipt of his commission.

A Distinguished Graduate receiving a commission as a Regular Officer in the United States Army will enter upon his career on the same day that he accepts that commission, and must serve a minimum of three years.

A scholarship program has been instituted by the Department of the Army awarding both two-year and four-year scholarships. Two-year scholarships are selected from cadets in the Basic Course, while four-year scholarships are awarded to high school graduates prior to their entering the University. The scholarships provide for all tuition and fees required in a course of study; for books and materials; and in addition, pay the recipient \$50 per month for the periods of actual attendance. During the time that the recipient attends Summer Camp, he is paid one-half the base pay of a 2LT with less than two years



service, plus travel expenses both ways. Upon receipt of his Regular Army commission, he must spend a minimum of four years on Active duty.

#### NAVAL SCIENCE

Students enrolled in the NROTC Program are classified as either "Contract" or "Regular": both classifications defer the enrolled student from the draft. The Naval Science courses are normally taken during four consecutive years. Five-year students are granted leave for one year during either their third or fourth year. Included under the "Contract" Program is a special "two-year Contract" Program: here the student attends a special summer camp prior to his last two years in school. He then joins the "Contract" Program in his Junior year.

#### *Contract Students*

Contract students are furnished uniforms and Naval Science textbooks all four years and are paid \$40 per month during their Junior and Senior years. They must have had high school math, including algebra and trigonometry, or must complete one college math course approved by the Professor of Naval Science by the end of their Sophomore year. At the end of the Junior year, they make one six-week, all-expense-paid, at-sea training period aboard an operating Navy ship, occasionally to a foreign port, and are paid \$120.60 a month during this period. Upon graduation they receive a Reserve commission in the Navy or Marine Corps and serve three years on active duty after which they may apply for a Regular commission, extended active duty, or inactive Reserve duty to complete six years service.

Students interested in the program should make application to the Professor of Naval Science while on campus during their orientation visit. Students interested in the special two-year program should make application to the Professor of Naval Science during the winter quarter of their Sophomore year.

#### *Regular Students*

Regular students are pre-selected through a process starting with a nation-wide, competitive examination in December of the previous year. They are furnished uniforms, all books, have tuition and fees paid, and receive \$50 per month as a retainer during the four-year program. These students must take three quarters of col-

lege mathematics and three quarters of physics at a level approved by the Professor of Naval Science by the end of their second year in the Regular Program. Placement exams, giving the student credit for such courses, may count as one quarter of the mathematics requirement. The Regular students participate in three summer at-sea training periods; two of which are eight-week training periods at sea on operating ships of the Navy; the third an eight-week field trip to amphibious and aviation bases. Upon graduation they are commissioned in the Regular Navy or Marine Corps and serve four years on active duty. At the conclusion of that time, they may apply for transfer to inactive duty in the Reserve to complete six years service.

During their Senior year, Regular and Contract students may apply for flight training which will commence upon their commissioning.

#### ARMED FORCES FOR WOMEN

Women college juniors and seniors are eligible to apply for an officer's commission in one of the branches of the Armed Forces—Army, Navy, Air Force, or Marine Corps. A graduate who successfully meets all requirements and is accepted for one of the programs will be given officer training. This training may come prior to or after commissioning, depending upon the program selected. The Army, Navy, and Marine Corps also offer programs for training in the summer following the junior year.

Salary is paid during training and uniforms, medical care, quarters, and meals are provided by the government.





# Courses of Instruction

The following pages present the descriptions of courses of instruction offered by the University at the undergraduate, graduate, and professional levels. The departments and schools, which offer the courses, are arranged in alphabetical order.

The courses in each are preceded by the names of faculty members with the rank of assistant professor, associate professor, and professor in that department or school. The ‡ preceding names signifies members of the graduate faculty who function in an advisory capacity. These lists are accurate as of Oct. 3, 1966.

The sample provided below itemizes the varieties possible. (Note carefully item 1, section B)

## 631.01†\* Structural Design V U G 5

(531)

*W, Sp. 3 cl., 2 2-hr. labs.*

*Prereq.: 673, Engr. Mech. 605 or 3rd yr. standing.*

*Not for credit to students majoring in Civil Engr.*

Basic theory and design of reinforced concrete structures. *Tilton.*

## EXPLANATION OF COURSE LISTINGS

The material in bold type includes:

The course number: **631.01**

631 indicates the course number

.01 indicates subdivision of omniscourse (Capital letter designates are no longer used)

**Note**—This Catalogue marks the inauguration of the University's new Classification and Course Numbering System which appears in detail immediately following.

**A dagger**—denoting that the course will not be offered this year: †

**An asterisk**—indicating that the course is offered every other year: \*

The course title: **Structural Design V**

The instructional level: **U G**

U = Undergraduate

UG = Advanced Undergraduate and Graduate

G = Graduate

P = Professional (for professional students enrolled in that particular school only)

**Credit hours: 5**

The material in *italics* includes quarters of offering: *W. Sp.*

(531) Number of course under previous numbering system. Students with credit for this course under this number are not permitted to enroll in it again under the new numbering system.

*Su* = Summer

*Sp* = Spring

*A* = Autumn

*W* = Winter

Summer Quarter is further divided into 1st Term and 2nd Term. See the University Calendar on page A-160 for dates. Lack of staff or low student enrollment may prelude offering a course, particularly at the advanced level, every quarter for which it is authorized.

Classroom and laboratory hours: *3-cl., 2-hr. labs.* In the illustration above, the 5 hours of credit are earned through satisfactory completion of course work which involves attending class 3 days a week and attending 2 2-hr. laboratory periods.

*Prerequisites: 673, Engr. Mech. 605 or 3rd yr. standing.*

The course number(s) or other information indicate the preparation or classification prerequisite to enrollment in the course. If no department name is listed, the course number refers to the course or courses indicated of equivalent background. If a class standing such as "3rd year standing" is listed, only students with that or higher class level are eligible for enrollment. The school or department office should be consulted in cases of question as to eligibility for taking the course.

Additional information affecting a student's enrollment in a course: Not for credit to students majoring in Civil Engr.

A brief description of the course: Basic theory and design of reinforced concrete structures. Instructor's name: *Tilton*



## UNIVERSITY CLASSIFICATION AND COURSE NUMBERING SYSTEM

Beginning with this 1967-68 academic year, the system of numbering courses offered by the University is as follows:

NUMBERS	COURSES	PREREQUISITES
000-099	<b>Non-Credit Courses (except certain seminars and colloquia)</b>  Orientation courses  Remedial courses  Experience courses with student not under direct supervision of faculty  Courses with credit added to graduation requirements	None
	<b>Courses Providing Undergraduate Credit Only</b>	
100-199	Basic courses providing undergraduate credit, but not to be counted on a major or field of specialization in <i>any</i> department  Beginning courses required or elective courses which may be prerequisite to other courses	None, or specified course(s) numbered 100-199
200-299	Basic courses providing undergraduate credit which may be counted on a major or field of specialization (in your and/or other departments)	45 qtr. hrs. in collegiate courses, exclusive of ROTC and Physical Education; or  Specified course(s) numbered 100-199; or  Satisfactory placement on entrance examinations when applicable.
300-399	<b>Courses Providing Undergraduate Credit or Professional Credit</b>  Intermediate courses providing undergraduate credit which may be counted on a major or field of specialization	90 qtr. hrs. in collegiate courses, exclusive of ROTC and Physical Education; or

NUMBERS	COURSES	PREREQUISITES
400-499	<p>Basic courses in the Professional Divisions of the Colleges of Education, and Engineering</p> <p>Basic courses in the Colleges of Dentistry, Pharmacy, and Veterinary Medicine</p> <p><b>Courses Providing Undergraduate Credit and May Provide Graduate Credit; Courses Providing Professional Credit and May Provide Graduate Credit</b></p>	Specified course(s) numbered 100-399
500-599	<p>Intermediate courses providing undergraduate credit which may be counted on a major or field of specialization, and may provide graduate credit only in other departments</p> <p>Intermediate courses in the Professional Divisions of the Colleges of Education, and Engineering;</p> <p>Intermediate courses in the Colleges of Dentistry, Pharmacy, and Veterinary Medicine</p> <p>Basic courses in the Colleges of Law, and Medicine</p>	<p>15 qtr. hrs. in courses in the same discipline numbered 200 or higher, or</p> <p>10 qtr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 qtr. hrs. in courses numbered 200 or higher in specified allied disciplines</p> <p>Baccalaureate degree</p>
600-699	<p>Advanced courses providing undergraduate credit which may be counted on a major or field of specialization, and providing graduate credit (in your and/or other departments)</p> <p>Advanced courses in professional divisions and professional colleges</p>	<p>15 qtr. hrs. in courses in the same discipline numbered 300 or higher, or</p> <p>10 qtr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 qtr. hrs. in courses numbered 300 or higher in specified allied disciplines</p>
700-799		15 qtr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher
800-999	<b>Course Providing Graduate Credit Only</b>	<p>30 qtr. hrs. in courses in the same discipline, or</p> <p>20 qtr. hrs. in the same discipline, plus 25 qtr. hrs. in specified allied disciplines</p>



## Accounting

Office: 452 Hagerty Hall, 1775 South College Road.

PROFESSORS: McCOLLOUGH (Chairman), DICKERSON (Emeritus), ECKELBERRY (Emeritus), FERTIG, GRIMSTAD, HECKERT (Emeritus), KOLLARITSCH, McCOY, and SHONTING (Emeritus); ASSOCIATE PROFESSORS BLACK, BRUSH, BURNHAM, BURNS, GRAY, LIVINGSTONE, LYLE, and NORTHROP; ASSISTANT PROFESSORS ALLEN, BATTAGLIA, BOLON (Emeritus), GORDON, and VANASSE.

### 201 Outline of Accounting U 5

(510) A, Sp. 5 cl.

Not open to students with credit for 211 or equiv.

Survey of accounting in modern business. This course is intended for students whose major interest is in fields other than business.

### 211 Introduction to Accounting U 5

(501) A, W, Sp. 5 cl.

Prereq. or concur.: Econ. 201 or equiv.

Not open to students with credit for 201 or equiv.

The uses of accounting reports in management decisions and in control of business enterprises.

### 212 Introduction to Accounting U 5

(502) A, W, Sp. 5 cl.

Prereq.: 211 or equiv. and Econ. 201 or equiv.

Not open to students with credit for 201 or equiv.

The accrual interpretation of transactions and fundamentals of income determination, uses of financial statements by persons outside the firm.

### 221 Accounting Methods U 5

(503) A, W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 212 or equiv.

The application of accounting techniques to recording and reporting financial information. Special emphasis is given to accounting systems and the use of working papers.

### 415 Factory Costs U 5

(624) A, Sp. 5 cl.

Prereq.: 212 or equiv.

Not open to majors in Acc.

Survey of industrial cost accounting for the student whose major interest is in fields other than accounting.

### 523 Financial Accounting U 4

(605) A, W, Sp. 4 cl.

Prereq.: 221 or equiv.

Not for graduate credit for majors in Acc.

Analysis and interpretation of financial statements, advanced study of concepts of asset valuation and income determination.

### 524 Financial Accounting U G 4

(606) A, W, Sp. 4 cl.

Prereq.: 523 or equiv.

A continuation of 523 with special emphasis on the accounting entity and business combinations.

### 525 Cost Accounting U G 4

(603) A, W, Sp. 4 cl.

Prereq.: 221 or equiv.

Not open to students with credit for 415 or equiv. Not for graduate credit for majors in Acc.

Basic concepts and techniques of industrial accounting. Historical and standard costs. Budgeting. Management use of cost accounting information.

### 526 Tax Accounting I U G 4

(641) A, W, Sp. 4 cl.

Prereq.: 201 or 212 or equiv.

Not for graduate credit for majors in Acc.

Fundamentals of federal, state, and local taxation, with major emphasis upon the federal income tax provisions having common application to all types of taxpayers.

### 531 Principles of Automatic Data Processing U G 3

(623) A, W. 2 cl., 1 2-hr. lab.

Prereq.: 212 or equiv. and Econ. 442 or equiv. or permission of instructor.

The principles of processing business data automatically; the uses and limitations of computers in business. Techniques used in formulating and solving business problems on computers.

### 535 Advanced Cost Accounting U G 4

(719) A. 4 cl.

Prereq.: 525 or equiv.

Advanced study of selected applications of cost accounting concepts to management problems involving performance measures with emphasis on budgetary control and standard costing.

### 536 Tax Accounting II U G 3

(642) A. 3 cl.

Prereq.: 221 and 526 or equiv.

Advanced study of complex problem areas in taxation confronting the professional tax advisor, emphasizing the structure of tax provisions and opportunities for planning and control.

### 627 Auditing Principles and Procedures U G 5

(735) A, W, Sp. 5 cl.

Prereq.: 524 and 525 or equiv.

Basic concepts and standards of auditing. Audit procedures and working papers. Internal and external audit reports.

### 628 Accounting Practice U G 4

(713) A, W, Sp. 4 cl.

Prereq.: 524 and 525 or equiv.

A study of the accounting concepts and standards underlying corporate and non-corporate financial statements, including consideration of typical accounting problems.

### 689 Field Work in Accounting U G 15

(740) A, W, Sp.

Open only to students who hold internships with public accounting firms, or with industrial concerns for which advanced approval has been given by the department. 15 hrs. and one qtr. of residence will be added to graduation requirements for students enrolled in this course.

**693 Individual Studies U G 2-5**

(799) A, W, Sp.

*Repeatable to a maximum of 15 cr. hrs.*

Individual reports on selected accounting problems in the following fields of accounting. Registration for this course number shall be followed by the letter designating the field of study.

- a. Auditing.
- b. Budgeting.
- c. Cost Accounting.
- d. Systems.
- e. Taxes.
- f. Theory

**711 Introduction to Management Accounting U G 3**

(643) A. 3 cl. and conf.

A survey of accounting principles from the viewpoint of management; income measurement; analysis and interpretation of accounting data, internal reports.

**712 Introduction to Management Accounting U G 3**

(644) W. 3 cl. and conf.

*Prereq.: 711 or equiv.*

Continuation of 711.

**811 Business Controls G 3**

(801) A, Sp.

*Prereq.: Two qtrs. or equiv. of Acc. and admission to the M.B.A. program.**Not for graduate credit for majors in Acc.*

Examination of business planning and the controls over operations and property. The use of accounting data in the management enterprise.

**831 Accounting Systems G 3**

(724) A, Sp. 3 cl.

*Prereq.: 524 and 525 or equiv.*

The principles underlying the design and installation of accounting systems.

**844 Theory and Practice G 3**

(817) W. 3 cl.

*Prereq.: 524 or equiv.*

Readings, reports, and advanced problems in accounting.

**845 Controllership G 3**

(820) W. 3 cl.

*Prereq.: 30 hrs. in Acc. or equiv.*

The accounting executive's role in the management of an enterprise. Accounting data for planning, coordination, control, and protection.

**846 Advanced Tax Accounting G 3**

(812) A, Sp. 3 cl.

*Prereq.: 526 or equiv.*

Tax alternatives and tax planning. Tax research. Post-filing problems and procedures.

**847 Advanced Auditing G 3**

(813) A, Sp. 3 cl.

*Prereq.: 627 or equiv.*

Growth of the auditor's liability and its effects on auditing procedures. Advanced auditing problems. Discussion of current material affecting the auditing profession.

**851† Accounting Problems of Financial Institutions and Fiduciaries G 3**

(828) W. 3 cl.

*Prereq.: 30 hrs. in Acc. or equiv.*

Accounting principles and problems peculiar to banks, insurance companies, brokerage and investment houses, receivers, executors, and trustees.

**852 Governmental Accounting G 3**

(830) Sp. 3 cl.

*Prereq.: 30 hrs. in Acc. or equiv.*

The application of accounting principles to government. Problems relating to funds, appropriations, and allotments.

**853 Accounting Policies of Regulatory Agencies G 3**

(856) Sp. 3 cl.

*Prereq.: 30 hrs. in Acc. or equiv.*

Accounting policies of the Federal Power Commission, Federal Communications Commission, and Securities and Exchange Commission, Ohio Public Utilities Commission.

**854 Accounting Aspects of Business Policy Determination G 3**

(860) W. 3 cl.

*Prereq.: 30 hrs. in Acc. or equiv.*

Case studies with particular attention to accounting analysis and application thereof to business problems.

**861 Seminar in Accounting G 3**

(804) A, W, Sp.

*Repeatable to a maximum of 9 cr. hrs.***999 Research in Accounting G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Aeronautical and Astronautical Engineering

Office: 528 Civil and Aeronautical Engineering Building, 2036 Neil Avenue.

PROFESSORS †VON ESCHEN (Chairman), †BURGGRAF, †EDSE, †GATEWOOD, †LEE, and †LI; ASSOCIATE PROFESSOR †MALLETT; ASSISTANT PROFESSORS †FISHBURNE, GREGOREK, †NEREM, and †PETRIE; and INSTRUCTORS.

**400 Elements of Aeronautics and Astronautics U 4**

(681) A. 4 cl.

*Prereq.: Physics 233, Math. 255 or concur.*

An integrated study at an intermediate level of dynamics, fluid mechanics, propulsion, and light weight structures as related to Aeronautical and Astronautical Engineering.



- 401 Elements of Aeronautics and Astronautics** U 4  
(682) W. 4 cl.  
Prereq.: 400.  
Continuation of 400.
- 500 Elements of Aeronautics and Astronautics** U 4  
(683) Sp. 4 cl.  
Prereq.: 401.  
Continuation of 401.
- 505 Aeromechanics** U 4  
(688) Sp. 4 cl.  
Prereq.: 401.  
Introduction to the nature and properties of aerodynamic fluids from microscopic and macroscopic points of view.
- 594 Special Studies in Aeronautical and Astronautical Engineering** U 3-5  
(698) A, W, Sp. 3-5 cl.  
Prereq.: Permission of department.  
Repeatable to a maximum of 15 cr. hrs.  
Special studies in aeronautical and astronautical engineering are undertaken to satisfy various nonrecurring needs for aeronautical and astronautical subject matter outside of the normal course structure of the department.
- 600 Aerokinetics** U G 4  
(700) A. 4 cl.  
Prereq.: 505.  
Derivation of fundamental equations governing internal and external aerodynamic flows.
- 603 Aerothermochemistry I** U G 4  
(705) W. 4 cl.  
Prereq.: 600.  
The aerodynamics of one-dimensional compressible flow from the molecular-kinetic point of view including chemical reactions in the fluid.
- 606 Motion and Deformation of Flight Vehicles** U G 4  
(729) A. 4 cl.  
Prereq.: 500, Eng. Mech. 510, Math. 418.  
Derivation of the basic equations and methods of analysis governing the motions, deformations, and resulting stresses encountered by flight vehicles.
- 620 Stability and Control of Flight Vehicles** U G 4  
(724) Sp. 4 cl.  
Prereq.: 606.  
Standard stability and control analysis, introduction to system response analysis.
- 640 Flight Vehicle Structures** U G 4  
(730) W. 4 cl.  
Prereq.: 606.  
Stress and deformation analysis of light weight structures for flight vehicles under static and dynamic loadings.
- 641 Structural Design of Flight Vehicle Components** U 4  
(731) Sp. 2 cl., 2 3-hr. labs.  
Prereq.: 640.
- 660 Classical Aerodynamics** U G 4  
(708) W. 4 cl.  
Prereq.: 600.  
Fundamentals of steady and unsteady incompressible, nonviscous aerodynamic flows with applications to oscillating airfoils and finite wings.
- 661 Compressible Aerodynamics** U G 4  
(707) W. 4 cl.  
Prereq.: 603, 660.  
The fundamentals of the aerodynamics of compressible fluids.
- 693 Special Problems in Advanced Aeronautical and Astronautical Engineering** U G 2-10  
(799) A, W, Sp.  
Prereq.: Written permission of department.  
Repeatable to a maximum of 15 cr. hrs.  
Special studies in aeronautical and astronautical engineering under one or more topics, including aircraft structures, aerodynamics, propulsion, flutter and vibration, and stability and control.
- 694 Advanced Studies in Aeronautical and Astronautical Engineering** U G 2-10  
(798) A, W, Sp.  
Prereq.: Written permission of department.  
Repeatable to a maximum of 15 cr. hrs.  
Special advanced topics in aeronautical and astronautical engineering with the specific area under consideration announced.
- 695 Senior Seminar** U 1  
(790) A. 1 cl.  
Prereq.: Aero-Astro. E. 5th yr. standing.
- 710 Aeronautical Laboratory** U 4  
(713) A. 2 cl., 2 3-hr. labs.  
Prereq.: Aero. Astro. E. 5th yr. standing.  
Laboratory demonstrations and experiments in aerodynamics, aeroelasticity, propulsion, and structures of flight vehicles.
- 711 Advanced Aeronautical Laboratory** U G 2-4  
(714) W. 4-8 lab. hrs.  
Prereq.: Permission of department, 710 or equiv.  
The solution of problems in aero-space engineering by experimental methods.
- 712 Advanced Aeronautical Laboratory** U G 2-4  
(715) Sp. 4-8 lab. hrs.  
Prereq.: Permission of department, 710 or equiv.  
Continuation of 711.
- 715 Preliminary Design of Flight Vehicles** U 4  
(740) Sp. 2 cl., 2 3-hr. labs.  
Prereq.: Aero-Astro. E. 5th yr. standing.
- 720 Stability and Control of Flight Vehicles** U G 4  
(725) W. 4 cl.  
Prereq.: 620.  
Modern methods of system response analysis, root-locus analysis, Liapunov stability analysis.

- 725 Analytical Dynamics of Astronautics I** U G 4  
(787) W. 4 cl.  
Prereq.: 606 or equiv.  
Satellite orbit analysis, multi-staging of rockets.
- 726 Analytical Dynamics of Astronautics II** U G 4  
(788) Sp. 4 cl.  
Prereq.: 725 or equiv.  
Perturbations of satellite orbits.
- 740 Thermal Stresses in Aircraft and Missiles** U G 4  
(746) Sp. 4 cl.  
Prereq.: 640.  
Theory of thermal stresses, aerodynamic heating and structural effects due to heating.
- 745 Aeroelasticity** U G 4  
(754) A. 4 cl.  
Prereq.: 660, 640.  
Dynamic loads analysis of elastic flight vehicles subjected to unsteady airloads.
- 746 Aeroelasticity** U G 4  
(755) W. 4 cl.  
Prereq.: 745.  
Continuation of 745.
- 750 Principles of Flight Vehicle Propulsion** U G 4  
(763) A. 4 cl.  
Prereq.: 661.  
Functional characteristics and performance of rocket, ramjet, turbojet, turbo-propeller, pulse jet, and hybrid engines.
- 751 Advanced Propulsion** U G 4  
(764) W. 4 cl.  
Prereq.: 750.  
Problems of chemical energy sources for space propulsion, nuclear and electric propulsion systems.
- 760 Advanced Compressible Flow I** U G 4  
(772) W. 4 cl.  
Prereq.: 661.  
Two-dimensional supersonic flow theories.
- 761 Advanced Compressible Flow II** U G 4  
(773) Sp. 4 cl.  
Prereq.: 760 and 770.  
Three-dimensional supersonic flow theories, wingbody interference, control surface theory.
- 770 Aerodynamics of Viscous Fluids I** U G 4  
(775) A. 4 cl.  
Prereq.: 661.  
The elements of laminar and turbulent boundary layers in incompressible flows.
- 771 Aerodynamic Heating** U G 4  
(778) Sp. 4 cl.  
Prereq.: 770.  
The analysis of laminar and turbulent boundary layer heat transfer in high speed flow.
- 775 Hypersonic Flows** U G 4  
(779) W. 4 cl.  
Prereq.: 760 and 770.
- 776 Hypersonic Flows** U G 4  
(789) Sp. 4 cl.  
Prereq.: 775.  
Continuation of 775.
- 805 Aerodynamics of Chemically Reacting Fluids** G 3  
A. 3 cl.  
Prereq.: 661 or equiv.  
The aerodynamics of one-dimensional compressible flow with chemical reactions and wave propagation. *Edae*.
- 810 Flight Vehicle Performance Analysis** G 3  
(823) A, W, Sp. 3 cl.  
Prereq.: 750, 761.  
Analysis of flight vehicle performance in planetary atmospheres. *Lee, Nerem, and Von Eschen*.
- 820 Advanced Flight Vehicle Stability and Control** G 3  
(821) A, W, Sp. 3 cl.  
Prereq.: 720.  
Advanced studies in: stability of systems, non-linear systems, Liapunov method, dynamics in extra-terrestrial atmospheres, new control methods. *Mallett*.
- 825 Advanced Analytical Dynamics of Astronautics** G 3  
(822) A, W, Sp. 3 cl.  
Prereq.: 726.  
Advanced study in transfer orbits, satellite rendezvous, satellite attitude control, lunar and planetary missions. *Mallett*.
- 840 Inelastic Structural Analysis** G 3  
(841) A, W, Sp. 3 cl.  
Prereq.: 640.  
The inelastic analysis of space structures and structural components subjected to thermal, uniaxial, and biaxial loads. *Gatewood*.
- 841 Advanced Aeroelasticity** G 3  
(842) A, W, Sp. 3 cl.  
Prereq.: 746.  
The effects of compressibility, three dimensional flow, and structural heating on the static and dynamic response of elastic and inelastic flight vehicles subjected to steady and unsteady loads. *Gatewood*.
- 842 Advanced Structures for Flight Vehicles** G 3  
(843) A, W, Sp. 3 cl.  
Prereq.: 640.  
Advanced analysis and design of aircraft structures and/or structural components including thermal, inelastic, and buckling effects. *Gatewood*.
- 850 Non-Equilibrium Flow Dynamics** G 3  
(861) A, W, Sp. 3 cl.  
Prereq.: 603.  
Relaxation, dissociation, waves (sound, shock) nozzle flow and design collisional energy transfer in gases. *Edae and Fishburne*.



- 851 Advanced Propulsion Problems G 3**  
 (862) A, W, Sp. 3 cl.  
 Prereq.: 751.

Combustion instability, free radicals as energy source, space propulsion problems, noise of exhaust jets, energy conversion, solid propellants, heat transfer in rocket engines, cascade theory. *Edse and Fishburne.*

- 852 Supersonic Combustion G 3**  
 (863) A, W, Sp. 3 cl.  
 Prereq.: 750.

Hypersonic ramjet, hybrid engines, detonation waves, flame propagation, flame temperature, combustion kinetics. *Edse and Fishburne.*

- 860 Advanced High Speed Aerodynamics G 3**  
 (871) A, W, Sp. 3 cl.  
 Prereq.: 761, 776.

Supersonic and hypersonic aerodynamics, unsteady aerodynamics, transonic flows, transient wave phenomena, non-equilibrium gas dynamics. *Burggraf, Lee, Li, Nerem, and Von Eschen.*

- 861 Advanced Boundary Layer and Heat Transfer Theory G 3**  
 (872) A, W, Sp. 3 cl.  
 Prereq.: 771.

Chemically reacting boundary layers, mass transfer and ablation, radiation gas dynamics, separated flow phenomena, interactions between viscous and inviscid flows. *Burggraf, Lee, Li, and Nerem.*

- 862 Modern Analytical Methods in Fluid Mechanics G 3**  
 (873) A, W, Sp. 3 cl.  
 Prereq.: 760, 770.

Emphasis on the solution of singular perturbation problems as they arise in fluid mechanics; methods illustrated by examples of low- and high-speed flows of viscous and inviscid fluids. *Burggraf and Li.*

- 865+\* Advanced Viscous Flow Theory G 3**  
 (776) Sp. 3 cl.  
 Prereq.: 770 or equiv.

Advanced topics in three-dimensional viscous flow. *Burggraf, Lee and Li.*

- 868\* Molecular Theory of Gas Flows G 3**  
 (777) Sp. 3 cl.  
 Prereq.: 505, 770 or equiv.

Molecular theory of flow from the viewpoint of the Boltzmann equation. *Edse and Lee.*

- 870 Aerodynamics of Plasmas G 3**  
 (831) A, W, Sp. 3 cl.  
 Prereq.: 603, Elec. E. 810 or equiv.

The governing equations of magnetofluidmechanics, similarity laws, and applications to continuum plasma problems of interest in aerodynamics. *Petrie.*

- 871 Aerokinetics of Plasmas G 3**  
 (832) A, W, Sp. 3 cl.  
 Prereq.: 600.

Wave propagation and magnetohydrodynamic shock waves in multi-component plasmas. *Petrie.*

- 872 Aerodynamics of Plasmas G 3**  
 (833) A, W, Sp. 3 cl.  
 Prereq.: 870 or 871.

*Petrie.*

- 880 Seminar G 1**  
 (881) A, W, Sp. 1 2-hr. cl.

Repeatable. Should be scheduled at least once by candidates for the M.S. degree and at least three times by candidates for Ph.D. degrees.

- 889 Advanced Topics in Aeronautical and Astronautical Engineering G 2-5**  
 A, W, Sp.  
 Prereq.: Permission of department.  
 Repeatable to a maximum of 15 cr. hrs.

- 999 Research in Aeronautical and Astronautical Engineering G Arr.**  
 (950) A, W, Sp.  
 Research for thesis or dissertation purposes only.

## Agricultural Economics

Office: 103 Agricultural Administration Building, 2120 Fyffe Road.

PROFESSORS †McCORMICK (Acting Chairman), †BAILEY, †R. L. BAKER, †R. H. BAKER, †BAUMER, BLOSSER, †CRAVENS, CRAY (Emeritus), DOUGAN, HENNING (Emeritus), †MANGUS, MILNER, †MITCHELL, †OYLER, †SHARP, †SHAUDYS, †SHERMAN, †SITTERLEY, †SMITH, †STOUT, †TOMPKIN, †WAYT, †WILLIAMS, and WERTZ (Emeritus); ASSOCIATE PROFESSORS †ADAMS, †BARR, †BOTTUM, CLAYTON, EZZELL, †JACOBSON, †JONES, McDONALD, MOORE, †REESER, †STEELE, and †WALKER; ASSISTANT PROFESSORS, †DARROW, †HIMES, †INGRAHAM, †MARION, †PHILLIPS, POLLOCK, †RASK, and VANDEMARK; INSTRUCTORS BURKHART, THOMAS, and TUCKER.

- 100 Economic Development of Food and Agriculture U 5**  
 (420) A, W, Sp. 5 cl.

An introduction to agricultural economics; a study of the major economic trends such as production, consumption, marketing, prices and the economics underlying these trends. *McCormick, Himes, Jones, Thomas.*

- 410 Farm Management U 5**  
 (502) A, W, Sp. 4 cl; 1 2-hr. lab, 1 field trip during qtr.  
 Prereq.: 100 and Econ. 201 or 402.

Organization and operation of farm business; economic and management principles involved in decision making, farm planning, enterprise selection, financing, and tenure. *Baker, Shaudys, Reeser, Rask.*

- 411 Farm Management for Developing Countries U 5**  
 Sp. 3 2-hr. lect.-lab. cl.  
 Prereq.: 100, Econ. 201 or 402, and one course each in Agron. and Animal Sc.  
 Not open to students with credit for 410.

Economics and management principles in decision making, planning, enterprise selection, organization, financing, and tenure for farming operations in developing countries. *Reeser, Rask.*

**412 Farm Records and Analysis U 5**

(510) W, Sp. 2 2-hr. cl.

Prereq.: 100 and Econ. 201 or 402.

Nature and need for farm business records and analysis and interpretation of essential records from farm manager viewpoint; their use in income tax reporting. *Baker, Shaudys, Rask.*

**420 Marketing Farm Products U 5**

(613) A, W, Sp. 5 cl.

Prereq.: 100 and Econ. 201 or 402.

Study of local wholesale, and retail marketing agencies and principles involved in the marketing of farm products. *Cravens, Stout, Steele.*

**502 Prices of Farm Products U G 3**

(612) W, Sp. 3 cl.

Characteristics of agricultural price, movement, measurement, seasonality, cycles, and forecasting, including analysis of price formation elasticity, parity, and other price statistics. *Himes.*

**516 Agricultural Finance U 5**

(610) A, Sp. 5 cl. One Saturday and one overnight field trip.

Prereq.: 410.

Agricultural credit, facilities, procurement, extension, and management. *Bailey, Jones.*

**518 Farm Appraisal U G 3**

(618) Sp. 3 cl., 3 3-hr. field trips during qtr.

Prereq.: 410.

Farm real estate appraisal with emphasis on methods, procedure and reporting. Factors influencing land value and fluctuation in land prices. *Baker.*

**521 Poultry Marketing U G 5**

(621) Sp. 5 cl.

Prereq.: 420.

(Offered in cooperation with the Department of Poultry Sc.)

Factors affecting supply and demand for poultry products; organization to achieve technical and economic efficiency within and among industry segments. *R. L. Baker.*

**522 Livestock Marketing U G 3**

(608) W. 3 cl.

Prereq.: 420.

(Offered in cooperation with the Department of Animal Sc.)

Selling methods, basis of sale, agencies involved, organization of markets, transportation, financing, marketing costs, prices, when to market, grade differentials, government regulation will be studied. *Stout.*

**523 Grain Marketing U G 3**

(633) A. 3 cl.

Prereq.: 420.

Principles and practices involved in grain and feed marketing and the theory of grain pricing; economics grain marketing. *Sharp, Milner.*

**526 Marketing Dairy Products U G 3**

(626) W. 3 cl.

Prereq.: 420.

(Offered in cooperation with the Department of Dairy Sc.)

A study of the principles of assembling, transporting, selling, pricing, distribution, marketing costs, and margin for dairy products.

**528 Marketing Fruits and Vegetables U G 3**

(628) Sp. 3 cl. One 2-day field trip.

Prereq.: 420.

Principles involved in the marketing of fruits and vegetables and the agencies concerned. *Cravens.*

**530 Agricultural Policy U G 5**

(605) A, W. 5 cl.

Not open to Juniors.

Characteristics and problems of agriculture; description and analysis of programs and policies designed to assist agriculture and alternative proposals for the future. *McCormick, Smith.*

**531 Land Economics U G 3**

(615) Sp. 3 cl.

Land resources and requirements. Economic principles involved in land use; major land use problems; ways of achieving better land use; public's interest in land policy. *Wayt, Reeser, Adams.*

**532 Foreign Agricultural Development U G 3**

(650) A. 3 cl.

Analysis of agricultural organization, production and marketing in foreign countries; foreign agricultural policies and international competition; appraisal of foreign technical assistance programs in agriculture. *Adams.*

**534 Food Economics U G 3**

(616) Sp. 3 cl.

Economic aspects of the production, distribution, and consumption of food. *Sherman.*

**540 Business Management in Agricultural Marketing U G 3**

(614) A, Sp. 2 cl., 1 lab.

Prereq.: 420.

A detailed study of representative agricultural marketing agencies including their problems of administration, employees, financial statements, selling, purchasing, and warehousing. *Ingraham.*

**541 Cooperation in Agriculture U G 5**

(603) A, Sp. 5 cl.

Prereq.: 420.

Basic principles of cooperatives including types of organizations, legal aspects, membership relations, financing, organizational and intercooperative problems, and distribution of savings. *Ingraham.*

**593 Individual Studies U 2-5**

(701) A, W, Sp.

Repeatable to a maximum of 8 cr. hrs.

Planning, conducting, and reporting a special problem in Agricultural Economics to meet the needs of the student.



**594 Special Group Studies U 1**  
(701) *A, W, Sp. Arr.*

*Repeatable to a maximum of 2 cr. hrs.*

Reporting of selected topics in Agricultural Economics to further acquaint the student with current conditions.

**610 Farm Organization U G 5**

(602) *A. 4 cl., 1 2-hr. lab. and one field trip during qtr.*

*Prereq.: 410, 412, Animal Sc. 200 and Agron. 411 or 412.*

Detailed application of production economics, management principles and decision making techniques to the organization, operation, and administration of farms; farm plans are developed. *Shaudys.*

**620 Market Organization in Agricultural Industries U G 4**

(713) *Sp. 4 cl.*

*Prereq.: 420, 541 and 521 or 522 or 523 or 526 or 528.*

Analysis of agricultural market structure, behavior, and performance; interpretation of recent changes in agricultural market structure.

**632 Foreign Agricultural Economic Development U G 3**

*W. 3 cl.*

Analysis of foreign agricultural production and marketing policies as related to international competition; appraisal of foreign technical assistance program in agriculture. *Adams.*

**680 Natural Resources Problems, Programs and Policies U G 4**

(697) *W. 2 2-hr. cl.*

*Prereq.: Conserv. 201 and 202.*

An analytical study of contemporary and future problems of natural resources conservation and the programs and policies related to their solution. *Dambach.*

**695 Seminar in Agricultural Business Management U G 3**

*A. 3 cl.*

Application of business management concepts to agriculture. *Ingraham.*

**716 Agricultural Finance U G 3**

*Sp. 3 cl.*

*Prereq.: 516 and Bus. Org. 620.*

Analysis of capital budgeting and cash flow techniques as related to agricultural finance; evaluation of selected procedures for estimating the repayment capacity. *Bailey, Jones.*

**740 Food Merchandising U G 4**

(711) *Sp. 4 cl.*

*Prereq.: 420 and 540.*

Management problems in the food distribution channel including consideration of the wholesale and retail markets. *Marion.*

**800 Research Methods in Agricultural Economics G 3**

(811) *A, W. 3 cl.*

*Prereq.: Econ. 805, 5 cr. hrs. Math., 4 cr. hrs. statistics.*

Principles of scientific method in agricultural economic investigations. *Sherman, Williams, Walker.*

**801 Seminar in Problems in Agricultural Economics Statistics G 3**

(9001) *Sp. 3 cl.*

*Prereq.: Econ. 641.*

Application of statistics to problems in agricultural economics. *Walker.*

**802 Quantitative Methods in Agricultural Economics G 3**

*W. 3 cl.*

*Prereq.: 800, Econ. 641 and differential calculus.*

Applications of analytical models to problems in Agricultural Economics research. *Walker.*

**803 Seminar in Linear Programming G 2**

*Sp. 2 cl.*

*Prereq.: 800.*

Application of linear programming to agriculture. *R. H. Baker.*

**804 Seminar in Agricultural Price Analysis G 3**

*Sp. 3 cl.*

*Prereq.: 800.*

Intensive consideration given to theory and analysis of agricultural prices. *Himes.*

**805 Economics of Agricultural Production G 3**

(820) *A, Sp. 3 cl.*

*Prereq.: Econ. 805, 5 cr. hrs. Math., 4 cr. hrs. statistics.*

A critical consideration of economic principles as they apply to production problems in agriculture. *Williams, Walker.*

**806 Economics of Agricultural Production G 3**

(821) *Sp. 3 cl.*

*Prereq.: 805, Econ. 808, 809, and Math. 151 or equiv.*

A further consideration of economic principles as they apply to production problems in agriculture. *Williams, Walker.*

**807 Seminar in Agricultural Economic Theory G 2-4**

(900B) *A. Arr.*

*Prereq.: 800, 805 and permission of instructor. Repeatable to a maximum of 8 cr. hrs.*

**810 Farm Organization and Resource Management G 3**

(830) *W. 3 cl.*

*Prereq.: 610.*

This course is designed to integrate resource use and the human factor under dynamic conditions of risk and uncertainty with a goal of economic progress. *Shaudys.*

**811 Seminar in Farm Organization and Management G 2-4**

*W. Arr.*

Application of micro-theory to farm organization and management.

**816 Seminar in Agricultural Finance G 2-4**  
A. Arr.

*Repeatable to a maximum of 8 cr. hrs.*

Intensive consideration is given to current theories and future problems in agricultural finance. *Bailey, Jones.*

**820 Agricultural Marketing G 3**

(840) W. 3 cl.

*Prereq.: 620, Econ. 805 and 806.*

Study of the major problems in agricultural marketing and relevant research findings. *Sharp, Cravens, Stout, Steele.*

**821 Seminar in Agricultural Marketing G 2-4**

W. Arr.

*Repeatable to a maximum of 8 cr. hrs.*

Critical analysis of major problems in agricultural marketing.

**830 Agricultural Policy G 4**

(860) A. 4 cl.

*Prereq.: 420, 580, Econ. 805 and 806.*

Examination of values of American society concerning agriculture, reasons for these values, and alternatives for achieving various goals for U.S. agriculture. *McCormick, Williams.*

**831 Land Economics G 3**

(850) Sp. 3 cl.

*Prereq.: 531, 805.*

Examination of current problems in land resources use, allocation, conservation, and control. *Wayt, Reeser, Adams.*

**832 Seminar in Economic Development of Foreign Agriculture G 2-4**

(900J) Sp. Arr.

*Prereq.: 632*

Characteristic problems of developing countries, identification and analysis of limiting factors in under-development, and techniques for stimulating economic development through growth in agriculture. *Adams.*

**833 Seminar in Land Tenure, Agrarian Reform and Agricultural Development G 2-4**

(900D) A. Arr.

*Repeatable to a maximum of 8 cr. hrs.*

Reappraisal of traditional tenure systems, agrarian reform alternatives, and effects on economic development. *Adams, Rask.*

**834 Seminar in Food Economics G 2-4**

(900D) A. Arr.

An examination of the economic relationship of food production to population and region of the world and areas within countries. *Sherman.*

**883 Individual Studies G 2-5**

(701) A, W, Sp.

*Repeatable.*

Planning, conducting, and reporting a special problem in agricultural economics fitting the needs of the student, under the guidance of an instructor.

**897 Interdepartmental Seminar in Natural Resources G 1**

A, W, Sp.

*(See under Interdepartmental Seminars)*

**899 Interdepartmental Seminars G 1-5**

A, W, Sp.

*(See under Interdepartmental Seminars.)*

**995 Seminar G 2 or 4**

(900) A, W, Sp. Arr.

*Repeatable to a maximum of 10 cr. hrs.*

**999 Research in Agricultural Economics G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Agricultural Education

*Office: 208 Agricultural Administration Building, 2120 Fyffe Road.*

PROFESSORS †BENDER (Chairman), †JOHNSON, KIRBY, †R. McCORMICK, †RITCHIE, ROBINSON, †TAYLOR, †WOLF, WOOD, and †WOODIN; ASSOCIATE PROFESSORS BOLENDER (Emeritus), †CHRISTENSEN, †GUILER, †HENSEL, †WILSON, and WORRALL; ASSISTANT PROFESSORS BOUCHER, †CUNNINGHAM, F. McCORMICK, and RUBLE; INSTRUCTORS DOUGAN and PULSE.

**200 Introduction to Agricultural Education U 3**

(456) A, W, Sp. 3 cl.

The importance and purpose of education in agriculture with emphasis upon nature of programs, opportunities available, and qualifications of personnel. *Boucher.*

**230 Methods in Teaching Vocational Agriculture U 5**

(501) A, W, Sp. 4 cl., 4 lab. hrs.

*Prereq.: 200.*

The learning process and its application to teaching vocational agriculture with laboratory study in selected schools. *Wolf.*

**380 Agricultural Education Experience U 2 or 3**

(550) A, W, Sp.

*Prereq.: 200 or permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

Supervised field experience in:

- .01 Teaching of agriculture (during Sept.). *Wilson.*
- .02 Cooperative Extension. *Cunningham.*
- .03 Specially programmed field work. *Wilson.*

**420 Extension Program Development U 3**

(526) Sp. 3 cl.

*Prereq.: 200 or permission of instructor.*



Principles and procedures in developing extension programs in agriculture and home economics, with emphasis on program determination, teaching methods, and relationships with other groups. *Cunningham*.

**581 Student Teaching in Agriculture U 5**

(504) A, W, Sp.

Prereq.: 580 and completion of departmental requirements for advanced standing; concur. 582, 583.

Supervised participation in the professional responsibilities of the teacher in agriculture. *Wilson, Cunningham*.

**582 Student Teaching in Agriculture U 5**

(505) A, W, Sp.

Concur.: 581 and 583.

See 581 for description and requirements.

**583 Student Teaching in Agriculture U 5**

(506) A, W, Sp.

Concur.: 581 and 582.

See 581 for description and requirements.

**621 Curriculum Development U G 3**

(707) Su. (1st term). 2 3-hr. cl.

Prereq.: 581, 582, and 583; or permission of instructor.

Principles and practices used in developing courses of study in agriculture for high school and post-high school programs. *Guiler*.

**622 Continuing Education in Agriculture U G 3**

(715) A. 1 3-hr. cl.

Prereq.: 581, 582, and 583; or permission of instructor.

Principles and practices involved in developing vocational and technical programs in agriculture for out-of-school youths and adults. *Bender, Wolf*.

**631 Methods in Teaching Agriculture U G 3**

(703) W. 2 1½-hr. cl.

Prereq.: 581, 582 and 583; or permission of instructor.

Theory, principles and procedures associated with effective instruction in agriculture at the secondary school and college level. *Bender*.

**640 Teaching Materials for Agricultural Education U G 3**

(611) Sp. 1 3-hr. cl.

Prereq.: 581, 582 and 583; or permission of instructor.

Theory and practice in developing and utilizing teaching materials in agricultural education. *Boucher, Guiler*.

**641 Occupational Experience in Agriculture U G 3**

(705) A. 1 3-hr. cl.

Prereq.: 581, 582 and 583; or permission of instructor.

Principles and procedures used by teachers in selecting, planning, conducting, and evaluating occupational experience programs for students in agriculture. *Wolf, Woodin*.

**642 Youth Organizations in Agriculture U G 3**

(712) Sp. 1 3-hr. cl.

Prereq.: 581, 582 and 583; or permission of instructor.

An analysis of the relationship of youth organizations to educational programs for youth, with emphasis upon planning and conducting FFA and 4-H Club programs. *Bender, F. McCormick*.

**684 Internship in Agricultural Education U G 3 or 5**

(624)

(625) A, W, Sp. Arr.

(626)

Prereq.: 581, 582, and 583; or permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Guided participation in planning, administering, conducting, and evaluating programs in vocational agriculture, agricultural extension, or in other fields of vocational education to further enhance professional competency.

**693 Individual Studies U G 2 or 3**

(701) A, W, Sp.

Planning, conducting, and reporting a special study in agricultural education appropriate to the needs of the student.

**743 Practicum in Teaching Agricultural Mechanics U G 3**

(708) W. 1 4-hr. cl.

Prereq.: 621, 631 or 684; or permission of instructor.

Selection and use of subject matter, resources, and methods of teaching agricultural mechanics. *Johnson*.

**744 Practicum in Teaching Farm Business Planning U G 3**

(709) A. 1 3-hr. cl.

Prereq.: 621, 631 or 684; or permission of instructor.

Selection and use of subject matter, resources, and methods of teaching farm business planning. *F. McCormick*.

**770 Evaluation in Agricultural Education U G 3**

(797) Sp. 1 3-hr. cl.

Prereq.: 621, 631 or 684; or permission of instructor.

Principles and procedures of evaluation used in developing programs of agricultural education. *Wilson, Woodin*.

**790 Workshops in Agricultural Education U G 4**

(799) Full time of student required for 3 wks.; no other courses concur.

Prereq.: Teaching or extension experience, or permission of instructor.

Intensive study of selected areas of agricultural education with emphasis on the application of principles and methods in attaining desired objectives.

.01 Program Planning. Su, W.

.02 Teacher Education. Su.

.03 Administration and Supervision. Su.

.04 Research and Development. Su.

- 794 Special Group Studies** U G 3 or 5  
*A, W, Sp. 1 3-hr. cl.*  
*Prereq.: Teaching or extension experience, or permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

An intensive study of a selected area in agricultural education appropriate to the needs of the group not provided in other courses.

- 795 Seminar** U G 2 or 3  
*(810) A, W, Sp. 1- or 2-hr. cl.*  
*Prereq.: Permission of instructor.*

Investigation and analysis of current problems and issues in agricultural education.

- 810 Principles of Vocational-Technical Education** G 3  
*A. 1 3-hr. cl.*  
*Prereq.: Professional experience in vocational education or permission of instructor.*

An analysis of evolving concepts of vocational and technical education with emphasis upon principles underlying organization and practice. *Woodin.*

- 811 Administration and Supervision in Agricultural Education** G 3  
*(804) A. 1 3-hr. cl.*  
*Prereq.: Experience in Agr. Ed. or permission of instructor.*

Principles in developing and administering programs of agricultural education with attention to federal-state-local relationships, in-service education, and supervisory procedures. *R. McCormick, Taylor.*

- 812 Teacher Education for Agriculture** G 3  
*(806) Su. (1st term). 5 cl.*  
*Prereq.: Experience in Agr. Ed. or permission of instructor.*

Principles and methods of teacher education in agriculture including selection and guidance of students, curriculum, field experience, placement, in-service education, and research. *Wilson.*

- 823 Program Planning and Development** G 3  
*(801) W. 1 3-hr. cl.*  
*Prereq.: Experience in Agr. Ed. or permission of instructor.*

Principles, theory, and practice in developing state and local programs of agricultural education. *R. McCormick, Taylor.*

- 885 Research Methods in Agricultural Education** G 3  
*(850) Su. (1st term) 5 cl.; W. 1 3-hr. cl.*  
*Prereq.: 6 cr. hrs. grad. courses or permission of instructor.*

Principles and techniques appropriate for planning, designing, conducting, and reporting research. *Christensen.*

- 889 Advanced Studies** G 3  
*(835) A, W, Sp.*  
*Prereq.: 885.*

Individual field study in partial fulfillment of needs for research experience.

- 899 Interdepartmental Seminar** G 2 or 3  
*A, W, Sp. 1 or 2 cl.*

Investigation and analysis of current problems and issues in cooperation with other appropriate departments.

- 999 Research in Agricultural Education** G Arr.  
*(950) A, W, Sp.*  
*Research for thesis or dissertation purposes only.*

## Agricultural Engineering

*Office: 105 Ives Hall, 2073 Neil Avenue.*

PROFESSORS †STEWART (Chairman), BARDEN (Emeritus), †BARRE, †BONDURANT, †HARROLD, †C. E. JOHNSON, †W. H. JOHNSON, McCUEN (Emeritus), MILLER (Emeritus), OVERHOLT (Emeritus), and †SCHWAB; ASSOCIATE PROFESSORS †BRAZEE, †CURRY, HERUM, †HUBER, †REEVE, †ROLLER, and †TAIGANIDES; ASSISTANT PROFESSORS †BLAIS-DELL, HALL and HAMDY; INSTRUCTORS FOUSS, HARKNESS, HENRY, RANEY, and WILLARDSON.

- 220 Buildings and Equipment for Farmstead Operations** U 3  
*(522) A. 2 cl., 3 lab. hrs.*  
*Prereq.: Math. 116 or 150.*

Functional requirements and planning of buildings and facilities for livestock production and for conditioning and storage of crops; environmental control; building construction. *Barre.*

- 221 Agricultural Materials Handling Systems** U 3  
*(528) W. 2 cl., 2 lab. hrs.*  
*Prereq.: 230 or permission of instructor.*

Principles, functional analysis and design of agricultural materials handling systems from harvest to utilization. *Barre.*

- 230 Power for Agricultural Operations I** U 3  
*(513) A, W, Sp. 2 cl., 2 lab. hrs.*  
*Prereq.: Math. 116 or 150.*

A study of power in agriculture with primary emphasis upon power needs for field operations, characteristics of available power sources, selection, and use of power units. *Huber.*

- 231 Power for Agricultural Operations II** U 3  
*(536) W. 2 cl., 2 lab. hrs.*  
*Prereq.: 230.*

An analysis of the functional requirements of energy needs of the farmstead, characteristics of available power sources, and selection of economic power units, including electrical power. *Harkness.*

- 240 Teaching of Agricultural Construction and Maintenance** U 3  
*(504) A, W, Sp. 2 cl., 6 lab. hrs.*  
*Prereq. or concur.: Agr. Ed. 230.*

Principles and methods of teaching selection, use, and care of hand and power tools, materials for wood and metal construction based upon farm needs. *C. Johnson.*



**250 Machines for Agricultural Operations U 3**

(525) A, Sp. 2 cl., 2 lab. hrs.

Prereq.: 230 or permission of instructor

Analysis of field machine operations with emphasis on recognition and quantitative solution of problems in selection and use of machines for optimum economic performance. *Harkness, Huber.*

**270 Agricultural Drainage and Erosion Control U 3**

(527) A, Sp. 2 cl., 3 lab. hrs.

Prereq.: Math. 116 or 150, Agron. 240.

Use and application of surveying instruments, serial and topographic maps, rainfall and runoff, and engineering problems of soil and water management on farms. *Schwab.*

**310 Fundamentals of Food Engineering U 5**

(510) A. 3 cl., 2 2-hr. lab.

Prereq.: 10 cr. hrs. in Math., 10 cr. hrs. in Chem., and 5 cr. hrs. in Physics.

Introduction to heat transfer, fluid flow, and thermodynamics in food processes. *Blaisdell.*

**403 Practical Experience in Agricultural Engineering U 5**

(508) A.

Prereq.: Permission of adviser.

Ten weeks of agricultural engineering work prior to fifth year. The occupation, work completed, and a written report shall be subject to approval by adviser.

**411 Refrigeration Engineering in the Food Industry U 5**

W. 3 cl., 2 2-hr. lab.

Prereq.: 310.

Transient heat transfer, thermodynamics of refrigeration systems, applications of refrigeration in food processing. *Blaisdell.*

**473 Engineering of Crop Growth Environment I U 4**

(557) W. 4 cl.

Prereq.: Agron. 671, Bot. 430, Math. 421.

Plant ecology, especially crop response to extreme of soil moisture; precipitation, infiltration, evapotranspiration, runoff, and probability of drought and excess moisture; soil classification. *Schwab.*

**474 Engineering of Crop Growth Environment II U 4**

(567) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 473, concur. Civil E. 511.

Soil erosion principles and control; contouring, terracing, vegetation, tillage and hydraulic conveyance structures; earth dams and farm reservoirs; headwater reduction and flood routing. *Schwab.*

**500 Farm and Home Safety U G 1**

(600) Sp. 1 cl.

Causes of accidents. Methods for conducting farm and home safety programs. For students interested in vocational agriculture, extension, and farm organization work.

**533 Sources and Utilization of Energy in Agriculture U G 5**

(655) W. 3 cl., 2 2-hr. labs.

Prereq.: Mech. E. 500; Elec. E. 500.

A study of sources of energy, principles of energy conversion and energy conversion systems of importance to agriculture. *Huber.*

**551 Advanced Farm Power and Field Machinery U G 3**

(605) Su. (1st term). 3 cl., 2 2-hr. lab.

Prereq.: 10 cr. hrs. Agr. E., 8 cr. hrs. Agron., or baccalaureate degree.

An advanced study of harvesting machines and power units from the mechanical, operational, and economic standpoint; emphasis is given to the development of optimum harvest systems.

**591 Workshop U G 4**

(799) Su. (1st term). First three weeks—full time.

Prereq.: 15 cr. hrs. Agr. E. and permission of instructor.

Principles, objectives, methods, and equipment in the organization and management of a program for teaching farm mechanics. Students will plan, present, and evaluate units of instruction.

 a. Farm Mechanics. *Johnson.*
**593 Individual Studies U G 3-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

Advanced study of problems not included in regular courses of this department.

**611 Food Engineering Design and Control U G 5**

Sp. 3 cl., 2 2-hr. lab.

Prereq.: 310, 411 and Animal Sc. 650 or Dairy Tech. 632 or Home Ec. 615 or Hort. 441.

Integration of economic principles, food sciences and engineering in optimum design and control of processing systems. *Blaisdell.*

**675 Engineering of Crop Growth Environment III U G 5**

(677) A. 3 cl., 2 3-hr. labs.

Prereq.: 474, Bot. 431.

Pumps and pumping; design of drainage channels, sub-surface drains, and irrigation systems; methods of irrigation; special soil problems and plant requirements; legal aspects. *Schwab.*

**676 Engineering of Crop Growth Environment IV U G 4**

(687) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 675, Biochem. 511.

Factors influencing plant growth and engineering methods of controlling growth factors through mechanical means; approach to functional design. *Harkness.*

**693 Individual Studies U G 3 or 5**

(702) A, W, Sp.

Prereq.: 15 cr. hrs. of 500 level or higher Agr. E. courses and permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Work on problems that are not included in regular courses; practice in development, organization, solution, and report on problems of student's choosing.

**723 Engineering of Agricultural Processes and Related Structures I U G 5**

(752) A. 5 cl.

Prereq.: 533, concur. 753, Mech. E. 510, Animal Sc. 430.

Functional requirements and principles involved in housing animals and biological materials; analysis of physical-chemical factors and properties affecting energy exchanges with the environment. *Barre.*

**724 Engineering of Agricultural Processes and Related Structures II U G 5**

(762) W. 5 cl.

Prereq.: 723, Elec. E. 520.

Analysis of processing and materials-handling subsystem functions in agriculture designed to provide greater yield from raw products and to reduce human labor. *Herum.*

**725 Engineering of Agricultural Processes and Related Structures III U G 4**

(772) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 724, Mech. E. 640.

Design of agricultural structures and interior environments to meet load requirements and to optimize recovery of animal and plant production. *Barre.*

**753 Functional Design of Harvesting Machines U G 4**

(765) A. 3 cl., 1 3-hr. lab.

Prereq.: 676, Eng. Mech. 410, Mech. E. 550.

Harvesting machine functional requirements imposed by crop physical and biological characteristics, by desired condition of harvested material, and by the production system; approach to functional design. *Huber.*

**754 Engineering of Agricultural Machines U G 5**

(775) W. 3 cl., 2 2-hr. labs.

Prereq.: 753, Indust. E. 401, Mech. E. 450.

Complete engineering development of machines for agricultural operations; introduction to experimental work, advanced work in analysis, functional and mechanical design, economic consideration.

**786 Engineering of Agricultural Systems U G 5**

(779) Sp. 3 cl., 2 2-hr. labs.

Concur.: 725.

Integration of engineering and biological principles in agriculture to optimize complete operational production systems; application of relevant theory to present and future systems.

**794 Advanced Studies in Agricultural Engineering U G 3**

(798) A, Sp. 3 cl.

Prereq.: 15 cr. hrs. of 600 level or higher Agr. E. courses and permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Advanced subjects in agricultural engineering. Course content to be announced in previous quarter.

A. Farm Structures. *Stewart.*

Sp. Power and machinery.

**808†\* Measurement in Agricultural Engineering G 3**

(880) Su. 3 cl.

Prereq.: Math. 520, 557 and 704, Mech. E. 770, 771, or equiv.

Theory and principles involved in measurement and control of biophysical processes in agricultural engineering. *Stewart.*

**850 Seminar G 1**

(801) A, W, Sp. 1 cl.

Repeatable to a maximum of 3 cr. hrs.

**857†\* Soil Machine Dynamics in Plant Environment G 3**

(883) Sp. 3 cl.

Prereq.: Agron. 671, Bot. 430, Civil E. 651, Eng. Mech. 711, Math. 551, Mech. E. 510, Physics 743, or equiv.

Mass and heat transfer in soil and dynamics of mechanical actions on soil in relation to plant environment and agricultural machine design and use.

**858†\* Turbulent Diffusion of Aerosols G 5**

(885) A. 5 cl.

Prereq.: Math. 704 and permission of instructor.

Phenomenological and statistical turbulent diffusion theories; cloud displacement and distortion; turbulent diffusion equations and tensors; fluid flow and turbulence effects; applications. *Braze.*

**877†\* Advanced Agricultural Drainage G 3**

(887) W. 3 cl.

Prereq.: 675 and Math. 412.

Theory of agricultural drainage, both tile and surface methods; measurements of drainage and frequency analysis; hydrologic characteristics of drainage systems; drainage requirements of crops. *Schwab.*

**897 Interdepartmental Seminar in Natural Resources G 1**

(See under Interdepartmental Seminars.)

**999 Research in Agricultural Engineering G Arr.**

(950)

Research for thesis and dissertation purposes only.

**Agriculture Survey Courses****101 Agriculture College Orientation U 1**

(401) A, W, Sp. 1 cl.

Prereq.: Admission to the College with 45 cr. hrs. or less of collegiate courses exclusive of Phys Ed. and ROTC.

Orientation to the University and College; exploration of curricula, opportunities and services.

**351 Agricultural Employment U 1**

(501) A, W. 1 cl.

Introduction to opportunities in agriculture; discussions related to employment, interviews, selection and application for career positions.



**590 Agriculture Honors Colloquium U 2**

(502) W. 2 cl.

*Prereq.: Enrollment in Agriculture Honors Program or permission of instructor.**Repeatable to a maximum of 4 cr. hrs.*

The relationships of technology, science, and economics in agriculture to society; discussions are led by faculty members or outside speakers.

**Agronomy**

Offices: 108 Townshend Hall, 1885 Neil Avenue. 101 Horticulture and Forestry Building, 1827 Neil Avenue. PROFESSORS †VOLK (Chairman), †ANDERSON, RAVER, †DAVIS, †DOLLINGER, HOFF, †HOLOWAY-CHUK, JONES, LAMB (Emeritus), †McLEAN, †MEDERSKI, MUSGRAVE, †PARSONS, †RAY, †SMITH, †TAYLOR, †VAN DOREN, †VAN KEUREN, WILLARD (Emeritus), †YAMAZAKI, and YODER; ASSOCIATE PROFESSORS †ARSCOTT, †BADER, †BENDIXEN, †FINDLEY, †FRANKLIN, †HAGHIRI, †HIMES, †TRIPLETT, and †WILDING; ASSISTANT PROFESSORS CLARK, †EVERETT, HALL, HEIZER, HERR, †LA-FEVER, †R. H. MILLER, †R. W. MILLER, †NIEHAUS, †SCHMIDT, SHOEMAKER, †STROUBE, and VIMMERSTEDT.

**200 Plant Science in Agriculture U 5**

A, W, Sp. 5 lect.

*Prereq.: Biol. 102 or Bot. 100.**Not open to students with credit for Agron. (403) or Hort. (402).**(Offered in cooperation with the Department of Hort. and Forest.)*

Study of environment and genetic factors that influence plant growth, and how man can alter these factors to produce plants which more adequately meet his needs.

**240 Soil Science U 5**

(501) A, W, Sp. 4 cl., 1 2-hr. lab.

*Prereq.: Chem. 101 and 102, or 121 and 122, or equiv.*

Introduction to the genetic, physical, chemical, and biological properties influencing soil productivity. Laboratory exercises include observation and quantitative determination of certain of these soil properties. Himes.

**411 Grain Crops U 4**

(515) A, W. 3 cl., 1 2-hr. lab.

*Prereq.: 200 or junior standing.*

A study of the grain crops, their classification, geographic distribution, culture, varieties, improvement, seed production, harvesting, handling, recognition, grading, and utilization. Ray.

**412 Forage Crops U 4**

(520) A, W, Sp. 3 cl., 1 2-hr. lab.

*Prereq.: 200 or junior standing.*

Characteristics, tolerances, requirements, uses, and production of principal forage plants. Management of pastures and meadows, based on a study of literature and experimental data. Anderson.

**413 Principles of Turfgrass Selection and Management U 4**

(630) Sp. 4 cl.

*Prereq.: 200 or 240.*

Adaptation, identification, uses, growth characteristics, growth responses, and fundamental principles essential to the production of quality turf. Miller.

**422 Weed Control U 4**

(525) A, Sp. 3 cl., 1 2-hr. lab.

*Prereq.: 200.*

A study of weeds, their identification, reproduction, and methods of control; emphasis on various aspects of chemical control measures. Herr.

**441 Soil Erosion and Its Control U 4**

(604) A. 3 cl., 1 3-hr. lab.

*Prereq.: 240.*

A study of the mechanics of soil erosion and its control. Field trips to observe erosion and conservation practices are included.

**442 Soil Management U 3**

(613) A. 3 cl.

*Prereq.: 240.*

An integrated study of fertility, tillage, erosion control, and water management in maintaining soil productivity. Shoemaker.

**510 Crop Production in Developing Countries U G 4**

(600) W. 4 cl.

*Prereq.: 200, 240 or equiv.*

Fundamental studies of field and plantation crops in tropical and subtropical countries with emphasis on means and techniques for obtaining production increases. Arscott.

**530 Field Crop Breeding U G 4**

(614) W. 3 cl., 1 2-hr. lab.

*Prereq.: 200 and 411 or 412, and Biol. 130 or equiv.*

Principles of genetics and methods of plant breeding applied to the improvement of field crops and the ultimate development of superior varieties. Smith.

**543 Tropical and Subtropical Soils U G 3**

A. 3 cl.

*Prereq.: 15 cr. hrs. of Agron., Hort., Geol., or equiv. at the 200 course level or above.*

A study of the physical, chemical, and biological properties and the fertilization, physical, and water management of tropical and subtropical soils; crop adaptation, plantation, and subsistence farming. Arscott.

**550 Pedology and Edaphology U G 5**

(603) Sp. 3 cl., 1 4-hr. lab. and field trips.

*Prereq.: 200, 240, and 442, or permission of instructor.*

A comprehensive study of soil with respect to its components, morphology, and genesis and how morphology influences soil behavior especially as it pertains to Ohio conditions. Hall.

**589 Field Work in Agronomy U G 5**

Su. 3-week field trip.

*Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

A field trip to the major crop, soil, and climatic regions east or west of the Mississippi River in the U.S., and to the major industries that utilize crops.

**594 Special Group Studies U G 3 or 5**

A, W, Sp.

*Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Selected topics in crop science and/or soil science will be discussed.

**595 Undergraduate Seminar U 2**

(599) A, W. 2 cl.

*Prereq.: 15 cr. hrs. in Agron. and 3rd or 4th yr. standing in Agron.*

Review and interpretation of research publications and study of functions of agronomic industries. *Anderson, Arscott, Himes.*

**602 Field Crop Ecology U G 3**

(640) Sp. 3 cl.

*Prereq.: 10 cr. hrs. of crops courses and 5 cr. hrs. of soils courses at the 300 level or higher, or permission of instructor.*

A study of the relationship of crop plants to climate, soils, and other limiting factors of distribution, production, and quality. *Bendixen.*

**612 Principles of Grassland Management U G 4**

(620) Sp. 4 cl., 1 4-day field trip.

*Prereq.: General 600 level prereq. or permission of instructor.*

An advanced course primarily dealing with establishment, management, maintenance, and utilization of important forage species as pasture, hay, silage, soilage and sod crops and ranges. *Anderson.*

**621 Physiological Aspects of Crop Management U G 3**

(601) A, W. 3 cl.

*Prereq.: Bot. 430 and 431, or equiv.*

Recognizing, correlating, and solving crop problems relating to efficient production and use of field crops.

**623 Principles of Turfgrass Management U G 4**

Sp. 4 cl.

*Prereq.: 413, Bot. 430 and 431.*

A study of the relationship between basic factors influencing turfgrass growth and the practical execution of maintenance practices which affect the production of quality turf. *Müller*

**650\* Advanced Soil Classification Morphology and Genesis U G 5**

W. 4 cl., 1 2-hr. lab., 3 1-day field trips.

*Prereq.: 550, 10 cr. hrs. from the following: 442, 621, Bot. 620, Geol. 550, or permission of instructor.*

Theory and principles of soil classification schemes emphasizing the 7th Approximation; classification and genesis of major soils of the world; methods to establish parent material homogeneity and indices of soil weathering. *Wilding.*

**660 Soil Microbiology U G 5**

(605) Sp. 3 cl., 2 2-hr. labs.

*Prereq.: 441, Microbiol. 607, Chem. 231 or 532, or permission of instructor.*

A study of the morphology and physiology of soil microorganisms and their biochemical transformations of inorganic and organic materials in relation to soil fertility. *Müller.*

**670 Soil Fertility U G 3**

(611) A. 3 cl.

*Prereq.: 441.*

A study of the factors affecting soil productivity and the practices needed in good soil management. Fertilizer properties and practices are included. *Arscott.*

**671 Soil Physics U G 5**

(608) A. 3 cl., 2 2-hr. labs.

*Prereq.: 441, Physics 231, 232 and 233, Math. 152, or permission of instructor.*

A study of the physical makeup and properties of soil, including structure, thermal relationships, consistency, plasticity, water, and their relationships. *Taylor.*

**672 Chemistry of Soils and Fertilizers U G 5**

(712) W. 3 cl., 2 2-hr. labs.

*Prereq.: 550, 670, Chem. 211 and 9 additional cr. hrs. in Agron. and/or Chem. at the 300 level or higher.*

A study of the chemical properties of soils and fertilizers affecting plant growth and composition including modern laboratory analysis of soil, fertilizer, and plant tissue. *McLean.*

**693 Individual Studies U G 3 or 5**

(701) A, W, Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

Students may select special agronomic problems, not included in regular courses and involving library, laboratory, or field studies.

**750†\* Methods of Soil Mineralogical Investigations U G 4**

Sp. 2 cl., 2 2-hr. labs.

*Prereq.: 15 cr. hrs. selected from the following: 550, 671, 672, Geol. 602, Mineral. 621, 654, Chem. 521, 621, 676, or permission of instructor.*

Theory, interpretation, and application of mineralogical tools for soil matrices including X-ray diffraction, X-ray spectroscopy, microscopy, thin section and thermal techniques. *Wilding.*

**786 Radioactive Tracers in Plant and Soil Research U G 3**

W. 1 cl., 2 3-hr. labs.

*Prereq.: 672 or permission of instructor.*

Radiochemical principles and techniques used in soil and plant research; designed to prepare the student to conduct radio-tracer experiments. *Franklin.*

**822 Physiological and Biochemical Aspects of Herbicides G 5**

(825) W. 4 cl., 1 2-hr. lab.

*Prereq.: Bot. 431, Biochem. 511, and Chem. 532, or equiv.*

Herbicide absorption, course, fate, and mode of action in plants; persistence and fate in soils. *Bendixen.*

**830†\* Advanced Field Crop Breeding G 4**

(814) W. 3 cl., 1 2-hr. lab.

*Prereq.: 530, Biol. 650, and 16 additional cr. hrs. in Agron., or permission of instructor.*

A detailed study of the genetic fundamentals and modern procedures used in the development of plant breeding programs for the improvement of agronomic crops. *Ray.*



**850†\* Soils of the Cold Regions G 3***Sp. 3 cl.**Prereq.: 30 cr. hrs. of Agron. or 30 cr. hrs. of Geog. and Geol. and Ecology.*

A study of the morphological, physical, chemical and biological properties of the soils and environmental features of the polar and alpine regions. *Everett.*

**860\* Chemistry of Soil Organic Matter G 3***Sp. 3 cl.**Prereq.: 660 and 25 cr. hrs. of Agron., or 20 cr. hrs. Agron. and 25 cr. hrs. Chem., Biochem. or Microbiol., or permission of instructor.*

A comprehensive study of soil organic matter including methods of study, theories of synthesis, physical and chemical properties, accumulation and functions of organic matter. *Miller.*

**870†\* Soil-Plant Relationships G 3***Su. (1st term) 3 cl.**Prereq.: 20 cr. hrs. of soil and/or plant sciences and 10 cr. hrs. of plant physiology.*

Discussion of recent literature pertaining to growth response curves, nutrient uptake, movement of nutrients in the soil, and measurement of availability of nutrients to plants. *McLean, Himes.*

**871†\* Advanced Soil Physics G 3***W. 3 cl.**Prereq.: 671 and permission of instructor.*

Moisture, gaseous, and thermal processes and regimes in vegetated soils and their influences on plant growth. *Taylor.*

**872 Physical Chemistry of Soils G 5***(805) W. 3 cl., 2 3-hr. labs.**Prereq.: 671, 672, Chem. 521 or 532, and 15 additional cr. hrs. in Agron. or Biol.*

A study of the physico-chemical properties of soil including methods of characterizing clay minerals, soil acidity, ionic absorption and release, and plant nutrient uptake. *McLean.*

**880 Seminar G 2***(801) A, W, Sp. 1 cl.**Repeatable to a maximum of 12 cr. hrs.*

Discussion of current problems in agronomy.

**884 Special Group Studies G 3***A, W, Sp.**Prereq.: Permission of instructor.**a. Theory and Application of Clay Membrane Electrodes. Sp.†\* McLean.***885 Research Principles and Techniques G 0***A. 1 cl.*

The philosophy of graduate education and the description of the techniques and special equipment most useful for conducting research in crops and soils science.

**887 Techniques of Experimental Design G 5***(807) W. 5 cl.**Prereq.: Biol. 650 and 651, and 10 cr. hrs. of Agron., or related subjects at the 400 level or above.*

A study of experimental designs and their application to agricultural research. *Smith.*

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3***Sp.**(See under Interdepartmental Seminars).***897 Interdepartmental Seminar in Natural Resources G 1***A, W, Sp.**(See under Interdepartmental Seminars).***999 Research in Agronomy G Arr.***(950) A, W, Sp.*

Research for thesis or dissertation purposes only.

## Air Science

(Aerospace Studies)

Office: 300 Military Science Bldg., 2121 Tuttle Park Place.

Air Force Reserve Officer Training Corps.

LT. COL. BASHAM & STAFF.

GENERAL MILITARY EDUCATION PROGRAM  
(Freshmen & Sophomores)

**101 Organization for United States National Defense U 2***(401) A. 1 cl., 1 lab. hr.*

An introduction to the Air Force as a profession and its organization for United States National Defense, and the development of the Air Force Combat Commands.

**102 Air Force, a Career Possibility U 2***(402) W. 1 cl., 1 lab. hr.**Prereq.: 101 or permission of the Professor of Aerospace Studies.*

A continuation of the Air Force organization with emphasis on the support commands and further development of the Air Force as a profession with consideration of its career opportunities.

**103 American Democracy versus International Communism U 2***(403) Sp. 1 cl., 1 lab. hr.**Prereq.: 102 or permission of the Professor of Aerospace Studies.*

A comprehensive study of the major ideological conflicts of the world with concentration on American democracy and international communism.

**201 The Military Might of the Communist World U 2***(501) A. 1 cl., 1 lab. hr.**Prereq.: 103 or permission of the Professor of Aerospace Studies.*

A survey of the military and political factors contributing to the might of the member countries in the communist world.

**202 United States Land and Sea Power U 2***(502) W. 1 cl., 1 lab. hr.**Prereq.: 103 or permission of the Professor of Aerospace Studies.*

A study of the major factors contributing to United States land and sea power and their unified use with U.S. Air Force.

**203 The Free World Military Alliances U 2**

(503) Sp. 1 cl., 1 lab. hr.

Prereq.: 103 or permission of the Professor of Aerospace Studies.

An insight into those factors which are contributing to the military power of the free world nations through various alliances and treaties.

PROFESSIONAL OFFICER EDUCATION PROGRAM  
(Juniors, Seniors, & Graduate Students)

**301 History of Aerospace Power U 3**

(601) A. 3 cl., 1 lab.

Prereq.: Completion of the General Military Course; completion of the Air Force ROTC Two-Year Field Training Unit; or permission of the Professor of Aerospace Studies.

An examination of the nature of war and the growth and development of aerospace power.

**302 Air Force Organizations and Operational Concepts U 3**

(602) W. 3 cl., 1 lab.

Prereq.: 301 or permission of the Professor of Aerospace Studies.

A fundamental study of the Air Force command structure; an investigation of concepts, doctrine and employment of aerospace forces.

**303 Astronautics and Space Operations U 3**

(603) Sp. 3 cl., 1 lab.

Prereq.: 302 or permission of the Professor of Aerospace Studies.

A study of aerospace technology; current and future space operations and their relationship to national security.

**401 The Professional Officer U 3**

(705) A. 3 cl., 1 lab.

Prereq.: 303 or permission of the Professor of Aerospace Studies.

An analysis of problem solving techniques, military professionalism and the Command-Staff Team relationship.

**402 Leadership and the Military Justice System U 3**

(706) W. 3 cl., 1 lab.

Prereq.: 303 or permission of the Professor of Aerospace Studies.

Study and practical application of human relations, the theories and techniques of leadership, and the uniform code of military justice.

**403 Management of Aerospace Forces U 3**

(707) Sp. 3 cl., 1 lab.

Prereq.: 303 or permission of the Professor of Aerospace Studies.

A study of the principles and functions of management, discipline and the junior officer responsibilities employing case studies and scientific method.

**411 Weather and Navigation U 1**

(701) A, W, Sp. 4 cl. first four wks. of quarter.

Prereq.: 303 or permission of the Professor of Aerospace Studies.

Basic principles of weather and navigation; preparation of student to meet Federal Aviation Agency standards for student pilots in Air Force Flight Instruction Program.

**Anatomy**

Office: 414 Hamilton Hall, 1645 Neil Avenue.

PROFESSORS †GRAVES (Chairman), †ACKERMAN, †H. APLINGTON, BAKER (Emeritus), EDWARDS (Emeritus), †J. EGLITIS, †GAUGHRAN, and †PALMER; ASSOCIATE PROFESSORS †I. EGLITIS, GERSTEN (Emeritus), †HALL, †RUSSELL, and †WESTON; ASSISTANT PROFESSORS BOSTON, †DELPHIA, HUMBERTSON, JULYAN, †KAELBLING, †VERNALL, and †WISMAR.

For related courses see Biology.

**200 Introductory Anatomy U 6**

(504) Su, A, W, Sp.

Prereq.: Biol. 102 or equiv.

Not open to pre-dental or pre-medical students

Fundamental principles of anatomy as illustrated by the dissection of the cat, supplemented by demonstrations of human material. H. Aplington, K. Aplington.

**201 Neuro-Muscular Anatomy U 5**

(505) A, 2 cl., 2 3-hr. labs.

Prereq.: 200 or equiv. and permission of instructor.

Not open to pre-dental or pre-medical students.

Neuro muscular anatomy of the human body. James King and Ronald St. Pierre.

**202 Comparative Vertebrate Anatomy U 6**

(513) Su, A, W, Sp. 3 cl., 3 2-hr. labs.

Prereq.: Biol. 102 or Zool. 101.

The basic plan of vertebrates with emphasis on the dog-fish shark and on phylogeny leading to the mammals. Julyan.

**604 Anatomical Methods U G 5**

A. 2 cl., 6 lab. hrs.

Prereq.: 15 cr. hrs. of Anat. and permission of instructor.

A study of the various techniques employed in anatomical research; designed for students to begin such research. Weston and Staff.

**607 General Histology U G 6**

W. 3 cl., 3 2-hr. labs.

Prereq.: 200 or 202 or equiv.

Not open to pre-dental or pre-medical students.

A detailed study of the tissues, and a general survey of the microscopic structure of various organs. Hayes.

**608 The Eye U G 5**

Sp. 2 cl., 2 3-hr. labs.

Prereq.: 607 and permission of instructor.

Human gross anatomy of the head and neck with special emphasis on the eye and orbit. Histology and embryology of the eye and associated structures. Welch.

**613 Comparative Morphology of the Lower Vertebrates U G 6**

A. 3 cl. 2 3-hr. labs.

Prereq.: Biol. 102 or Zool. 101.

Not open to optometry, pre-medical, pre-dental or pre-veterinary students.

Comparative morphology of representative lower vertebrates. Julyan.



- 615 Human Developmental Anatomy and Genetics** P G 2  
*A. 32 cl., and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Emphasis is on human gametogenesis, fertilization, and the formation of germ layers, fetal membranes and organs. *Weston, Russell, Welch, and John King.*
- 616 Vertebrate Embryology** U G 6  
*Su, Sp. 3 cl., 3 2-hr. labs.*  
*Prereq.: 202 or equiv. or Zool. 620.*  
 Embryology of representative amphibia, birds and lower mammals from fertilization through gametogenesis. *Delphia.*
- 617 Human Developmental Anatomy and Genetics** P G 2  
*W. 32 cl., and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Continuation of 615.
- 618 Introductory Neurology** U G 6  
*A. 3 cl., 3 2-hr. labs.*  
*Prereq.: 202 or equiv.*  
 An elementary presentation of the structure and function of the human nervous system. A basic consideration of the neurological systems and servomechanisms. *Humbertson.*
- 619 Comparative Morphology of Mammals** U G 5  
*W. 2 cl., 2 3-hr. labs.*  
*Prereq.: 202 or 613.*  
 Morphology of mammals, including man, from the point of view of their structural evolution. *Julyan.*
- 621 Human Anatomy** P G 8  
*A. 149 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Gross anatomy of the thorax, abdomen, and pelvis, using cadavers, roentgenograms, cross sections, models, and films. Physical diagnosis, television demonstrations, and individual practice in the clinic.
- 622 Human Anatomy** P G 4  
*W. 96 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Gross anatomy of the head, neck, and limbs, using cadavers, roentgenograms, cross sections, models, and films. Physical diagnosis, television demonstrations, and individual practice in the clinic.
- 624 Histology of the Human** P G 3  
*W. 56 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 General histology, cytology; epithelial, connective, bone, muscular, and nervous tissues, blood, hemopoietic tissue and vascular system.
- 625 Histology of the Human** P G 7  
*Sp. 120 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Special histology of the integumentary, digestive, respiratory, urogenital, and endocrine systems.
- 627 Clinical Anatomy** P G 2  
*Sp. 2 cl.*  
*Prereq.: Med. 2nd yr. standing.*  
 A study of selected anatomical regions correlated with clinical diagnostic methods. *Graves and Staff.*
- 637 Essentials of Embryonic Development** P 3  
*Sp. 2 cl.*  
*Prereq.: Dent. 1st yr. standing.*  
 The early embryology and organogenesis of man. The laboratory study emphasizes the pig embryo and is supplemented by human material. *Delphia.*
- 638 Human Anatomy** P G 5  
*W, Sp. 3 cl., 2 3-hr. lab.*  
*Prereq.: Dent. 1st yr. standing.*  
 Gross anatomy of the abdomen and extremities. *I. Eglitis.*
- 639 Human Anatomy** P G 7  
*W. Sp. 4 cl., 3 3-hr. lab.*  
*Prereq.: Dent. 1st yr. standing.*  
 Gross anatomy of the head, neck, and thorax. *Russell, Boston, Lauer.*
- 640 Histology** P G 6  
*A. 3 cl., 3 3-hr. lab.*  
*Prereq.: Dent. 1st yr. standing.*  
 General histology of the tissues and special histology of the organ systems. *Vernall, J. Eglitis, Hayes.*
- 641 Applied Anatomy** P G 1  
*A. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Anatomy of the head and neck as applied to clinical dentistry. *Russell.*
- 642 Human Neurology** P G 2  
*(626) W. 48 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 The gross and microscopic anatomy of the human brain and spinal cord with special emphasis on the reaction systems.
- 643 Human Neurology** P G 3  
*(626.A) Sp. 72 cl. and lab. hrs.*  
*Prereq.: Med. 1st yr. standing.*  
 Continuation of 642.
- 693 Individual Studies in Anatomy** U G 2-5  
*(701) Su, A, W, Sp. 1 cl., 2 3-hr. labs. and/or library hrs.*  
*Prereq.: 15 cr. hrs. in Anat. or allied fields and permission of instructor.*  
 Designed to enable the student to pursue a minor investigation in some anatomical field of his choice. *Graduate Staff.*

**705 Anatomical Methods in Electron Microscopy**

2 months, offered Jan., Feb.

Sp.

P 12

G 5

Prereq.: Med. 2nd, 3rd or 4th yr. standing.

The preparation of biological materials for electron microscopy and training in the operation of the instrument. A research project may be chosen. *Weston.*

**727 Anatomy of the Newborn**

1 month, offered Apr., Nov.

Sp.

P 6

G 3

Prereq.: Med. 2nd, 3rd or 4th yr. standing

Gross anatomy of the newborn correlated with prenatal and postnatal development; dissection and section study. *Edwards, Gaughran, Graves, I. Eglitis.*

**728 Topographical Anatomy**

1 month, offered July, Apr.

Sp.

P 6

G 2-4

Prereq.: Med. 2nd, 3rd, or 4th yr. standing.

A study of human body sections with emphasis on structure relations. *Gaughran, Graves, and I. Eglitis.*

**793 Individual Studies in Anatomy**

Su, A. W. Sp.

Prereq.: Permission of instructor.

Repeatable.

a. Advanced Regional Dissections,  
1 month, offered any month

P 6

b. Blood and hemopoiesis

G 3 or 5

c. Blood and Connective tissues

G 3 or 5

d. Embryology

G 3 or 5

e. Advanced comparative morphology

G 3 or 5

f. Microscopic anatomy

G 3 or 5

g. Neurology

G 3 or 5

h. Normal X-ray anatomy, 1 month offered Nov., May

P 6

i. Epithelial tissue, including glands

G 3 or 5

j. Gross human anatomy

G 3 or 5

k. Electronmicroscopy

G 3 or 5

l. Tissue culture

G 3 or 5

**811 Comparative Histology**

G 5

(711) Sp. 2 cl., 3 2-hr. labs.

Prereq.: 607 or 824 or equiv.

A general consideration of cells, tissues and organs of animals with emphasis on the comparative and evolutionary aspects. *Wismar.*

**815 Human Morphogenesis and Genetics**

G 4

A. 2 cl., 2 3-hr. lab.

Prereq.: Permission of instructor.

Emphasis is placed on human gametogenesis, fertilization, germ layer formation, organogenesis, foetal membranes, and principles of human genetics.

**817<sup>+</sup> Comparative Neurology**

G 5

W. 3 cl., 3 2-hr. lab.

Prereq.: 618 or 642 or 826 and permission of instructor.

A phylogenetic approach toward an appreciation of neurology. The development and refinement of specific tracts will be considered from invertebrates to man. *Hall.*

**818<sup>o</sup> The Autonomic Nervous System**

G 4

W. 2 2-hr. cl.

Prereq.: 618 or 642 or 826 and/or permission of instructor.

A detailed presentation of the Involuntary Nervous System. *Hall.*

**821 Human Morphology**

G 6

A. W. Sp. 3 cl., 9 lab. hrs.

Prereq.: Permission of instructor.

Gross anatomy of the human body for advanced students in comparative morphology. Special attention is given to the phylogenetic and ontogenetic history of the organ systems. *Gross Anatomy Staff.*

**822 Human Morphology**

G 6

W. Sp. 3 cl., 9 lab. hrs.

Prereq.: 821.

Continuation of 821.

**824 Advanced Mammalian Histology**

G 5

A. W. 3 cl., 6 lab. hrs.

Prereq.: Permission of instructor.

General histology of mammalian tissues and special histology of the vascular system.

**825 Advanced Mammalian Histology**

G 5

Sp. 3 cl., 6 lab. hrs.

Prereq.: Permission of instructor.

Special histology of mammalian organ systems except the vascular.

**826 The Nervous System of Man**

G 5

Sp. 3 cl., 6 lab. hrs.

Prereq.: Permission of instructor.

A detailed consideration of the gross and histological structure of the nervous system and sense organs of man.

**840 Medical Education**

G 3

W. 3 cl.

Prereq.: Permission of instructor.

Introductory experiences in administrative and functional aspects of all phases of medical education including observation of methods, evaluation, curriculum, design, student selection, and educational research.

**850 Seminar in Anatomy**

G 1

(330) A. W. Sp.

Discussions of research in progress and reports from the literature of current anatomical problems.

**999 Research in Anatomy**

G Arr.

(930) Su, A. W. Sp.

Research for thesis or dissertation purposes only. *Graduate Staff.*



## Animal Science

Office: 110 Animal Science Building, 2029 Fyffe Road.  
 PROFESSORS †G. R. JOHNSON (Chairman), BELL (Emeritus), †CAHILL, †CLINE, †HARVEY, †R. M. JOHNSON, †R. R. JOHNSON, †KLOSTERMAN, KOTTMAN, †KUNKLE, †LUDWICK, †MOXON, SUTTON (Emeritus), †TEAGUE, †TYZNIK, †VENZKE, and †R. F. WILSON; ASSOCIATE PROFESSORS †DEHORITY, †OCKERMAN, †PARKER, REED, and †SWIGER; ASSISTANT PROFESSORS †PLIMPTON, †PURSER, and G. R. WILSON; INSTRUCTORS JUDY and ALTHOUSE.

### 100 Domestic Animals in the Service of Man U 5

A, W, Sp. 5 cl.

(Offered in cooperation with the Departments of Dairy Sc. and Poultry Sc.)

The role of the animal industry in the world and the importance of the application of science in meeting the needs in the production, distribution and utilization of animal products. Plimpton.

### 200 Introductory Animal Science U 5

(401) A, W, Sp. 3 cl., 2 2-hr. lab.

Introduction to selection, breeding, feeding, management, marketing, and utilization of beef cattle, swine, and sheep; a limited discussion of the horse is included. Parker, R. F. Wilson, G. R. Wilson, Judy.

### 250 Meat Selection and Identification U 3

(407) A, W, Sp. 3 2-hr. lab.

The structure and composition of beef, pork, veal, and lamb are used to distinguish grades and usefulness of meat products for domestic and institutional purposes. Kunkle, Cahill, Althouse.

### Principles of Animal Improvement

(See Dairy Sc. 420.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### 430 Principles of Animal Nutrition U 5

(530) A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: Chem. 102 or 122 and Math. 150 or equiv.

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

A study of the fundamental principles of nutrition in mammals and birds. Cline, Naber, Tyznik.

### 440 Livestock Management U 5

(515) W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200 and 430.

Open to Agr. Ed. majors only.

Feeding, breeding, and managing of beef, sheep, and swine; laboratory exercises are concerned with major management problems. G. R. Wilson.

### 450 Meat and Meat Products U 5

(509) A, W, Sp. 3 cl., 2 3-hr. lab.

Prereq.: 200 and 430.

Selection of slaughter animals to illustrate the relationship of breeding, feeding, and management to carcass yield, cost, and cut-out value; meat processing is emphasized. Althouse, Cahill, Kunkle, Plimpton.

### 451 Meat Grading U 3

(510) Sp. 1 cl., 2 2-hr. lab.

Prereq.: 200 and 430; 250 for Home Ec. students.

The factors that influence the value of meat animals, carcasses, and wholesale cuts in accordance with recognized grading standards; laboratory practice. Althouse.

### 500 Livestock Selection U G 5

(508) Sp. 5 2-hr. lab-discussions.

Prereq.: 200, 430 and 5 additional cr. hrs. in 541, 542, 543, 544 or permission of instructor.

Laboratory exercises employing current standards of animal excellence including carcass value for the selection and improvement of farm livestock. G. R. Wilson.

### Livestock Marketing

(See Agr. Ec. 522.)

(Offered in cooperation with the Department of Animal Sc.)

### 541 Horse Production and Management U G 5

(501) W. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., or baccalaureate degree.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of horses.

### 542 Beef Cattle Production and Management U G 5

(502) A, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., Poul. Sc., or baccalaureate degree.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle.

### 543 Swine Production and Management U G 5

(503) A, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., Poul. Sc., or baccalaureate degree.

Selection of breeding stock, reproduction, feeding, management, and sale of commercial and breeding swine; swine herds, markets, and research stations are visited. R. F. Wilson.

### 544 Sheep Production and Management U G 5

(505) W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., Poul. Sc., or baccalaureate degree.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep.

### 593 Individual Studies U 3-5

(701) A, W, Sp.

Prereq.: Junior or senior standing and permission of instructor.

Special assignments and elementary research; problems assigned after consultation with instructor in charge.

### 594 Special Group Studies U 3-5

(701) A, W, Sp.

Prereq.: Junior or senior standing and permission of instructor.

Special assignments and elementary research; problems assigned after consultation with instructor in charge.

**630 Nutrition and Feeding of Monogastric Animals U G 5**

A, W, Sp. 4 cl., 1 2-hr lab.

Prereq.: 430 or equiv.

(Offered in cooperation with the Department of Poul. Sc.)

The nutrition of swine, poultry, and laboratory animals; principles and practice. Cline, Naber.

**631 Nutrition and Feeding of Ruminant Animals U G 5**

A, W, Sp. 4 cl., 1 2-hr lab.

Prereq.: 430 or equiv.

(Offered in cooperation with the Department of Dairy Sc.)

The nutrition of dairy cattle, beef cattle, and sheep; principles and practice. Staubus, Tyznik.

**650 Advanced Meat Technology U G 3**

(619) W. 2 cl., 2 1-hr. lab.

Prereq.: 15 cr. hrs. Chem., 5 cr. hrs. Microbiol., and 5 cr. hrs. Anat.

Evaluation of scientific contribution to meat products and processing. Cahill, Kunkle, Ockerman.

**693 Individual Studies U G 3-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

Special assignments and advanced research; problems assigned after consultation with the instructor in charge.

**694 Special Group Studies U G 3-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

Special assignments and advanced research; problems assigned after consultation with the instructor in charge.

**Genetics of Animal Populations**

(See Dairy Sc. 720.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**800 Seminar G 1**

(810) A, W, Sp.

Prereq.: Animal Sc. graduate standing.

Discussions of current animal science research.

**Current Topics in Animal Genetics**

(See Dairy Sc. 820.)

(Offered in cooperation with the Department of Animal Sc. and Poul. Sc.)

**830 Advanced Studies in Nutrition G 3**

A, W, Sp. 3 cl.

Prereq.: Biochem. 613 and 623 or Physiol. Chem. 611 and 612 or permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

.01 Energy A.\* Conrad.

.02 Minerals W.\* Cline.

.03 Proteins Sp.\* Naber.

.04 Vitamins A.†\* Tyznik.

.05 Lipids W.†\* R. R. Johnson.

.06 Laboratory Methods in Nutrition. Sp.†\* Purser.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.

(See Interdepartmental Seminars.)

**999 Research G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Anthropology**

Office: 112 Hagerty Hall, 1775 South College Road. PROFESSORS †WILLIAMS (Chairman), †BOURGUIGNON, and †ESTEL; ASSISTANT PROFESSORS †DENTAN, †HALL, and KRAUSE; LECTURER †BABY.

**210 Introduction to Ethnology U 5**

(503) A, W, Sp. 5 cl.

Prereq.: 2nd yr. standing.

A comparative survey of tribal peoples in basic world areas—Asia, Africa, Oceania, North and South America. Williams and Staff.

**251 Introduction to Physical Anthropology U 5**

(502) A, W, Sp. 5 cl.

Prereq.: 2nd yr. standing.

The organic development of man; human evolution; the modern groupings of man. Estel and Staff.

**261 Introduction to Anthropology U 5**

(501) A, W, Sp. 5 cl.

Prereq.: 2nd yr. standing.

An introductory survey of the field of Anthropology, with emphasis upon the prehistoric development of culture. Behavior of man illustrated by the simpler societies.

**401 Dynamics of American Culture U 3**

(633) A. 3 cl.

Prereq.: 5 hrs. of Anthropol., or equiv. or permission of instructor.

A review of American customs, institutions, social systems, and ideas, with emphasis on recent cultural anthropological studies.

**410 Social Relations in Folk Societies U 4**

(612) A. 4 cl.

Prereq.: 5 hrs. of Anthropol., or equiv. and permission of instructor.

Forms of social organization in simpler societies. Dynamics of social relations in such societies; a comparison of simpler forms of social structure with complex forms. Bourguignon.

**412 Indians of the Americas U 4**

(630) Sp. 4 cl.

Prereq.: 5 hrs. of Anthropol., or equiv. and permission of instructor.

American Indian cultures of the time of European conquest. Estel.



**414 Ethnology of Asia U 4**

(634) W. 4 cl.

*Prereq.: 5 hrs. of Anthropol., or equiv. and permission of instructor.*

A survey of the people of Asia. High civilizations and tribal cultures. Prehistoric origins of Asian cultures; the distribution of physical types; languages; social customs. *Dentan.*

**415 Ethnology of Africa U 4**

(635) A. 4 cl.

*Prereq.: 5 hrs. of Anthropol., or equiv. or permission of instructor.*

The people of Africa south of the Sahara. Distribution of physical types; languages; cultural areas. West Coast kingdoms as source of the American Negro.

**416 Peoples of Cultures of Latin America U 3**

(639) Sp. 3 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. or permission of instructor.*

The pre-Columbian background. Contemporary races, cultures, and social organizations. The emergence of Latin America as a distinct culture area in the modern world. *Bourguignon.*

**430 Introduction to Anthropological Linguistics U 4**

(660) W. 4 cl.

*Prereq.: 10 cr. hrs. of Anthropol. or permission of instructor.*

Relations of language to social organization, world view, socialization, and cultural analysis. *Callahan.*

**450 Fossil Man U 4**

(636) W. 4 cl.

*Prereq.: 251 or equiv. or 15 cr. hrs. in Biol. Sc. or Geol.*

A comprehensive study of the fossil hominids. Fossils of *Homo Sapiens* and their relation to other fossil hominids.

**452 Physical Variability of Modern Man U 4**

(637) Sp. 4 cl.

*Prereq.: 251 or equiv. or 15 cr. hrs. in Biol. Sc. including genetics.*

The racial classification of man on a biological basis. The evolution of *Homo Sapiens* and the development of human variability. Racial differences and mixtures.

**454 Osteometry U 2**

(730) W. 1 hr. lec., 3-hr. lab.

*Prereq. or concur.: 450 or equiv.*

Laboratory measurements of human skeletons.

**456 Anthropometry U 2**

(731) Sp. 1 hr. lec., 3-hr. lab.

*Prereq. or concur.: 452 or equiv.*

Laboratory measurement of living human beings.

**460 American Indian Prehistory U 4**

(632) A. 4 cl.

*Prereq.: 5 hrs. of Anthropol., or equiv. or permission of instructor.*

A survey of American Indian archaeology. The origin and development of Indian culture from the first peopling of the continent to the coming of Europeans. *Estel.*

**510 Culture Contact and Technological Change U G 4**

(607) Sp. 4 cl.

*Prereq.: 261 and Soc. 101 or 201 or equiv. or permission of instructor.*

Consequences for folk societies of the diffusion of Euro-American culture. Introduction of advanced technology to underdeveloped areas. Cultural aspects of colonialism and military government. *Dentan.*

**570 Theory and Problems of Cultural Anthropology U G 4**

(639) W. 4 cl.

*Prereq.: 20 cr. hrs. in allied subjects.*

Major theoretical viewpoints in cultural anthropology. Significance of the cultural approach. Applied anthropology to psychology and other social sciences. *Dentan.*

**610 Religion in Folk Societies U G 4**

(613) W. 4 cl.

*Prereq.: 5 hrs. of Anthropol., or equiv. and permission of instructor.*

World views in folk societies, emphasizing religion and sacred beliefs. Integration of these beliefs with social organization and the arts. Slides, motion pictures, recordings. *Bourguignon.*

**640 Research Methods in Physical Anthropology U G 3**

(710) A. 3 cl.

*Prereq.: 15 cr. hrs. of Anthropol. or 10 cr. hrs. of Anthropol. and 10 cr. hrs. of closely related work, and permission of instructor.*

Methods used in the analysis and classification of man in both comparative and evolutionary approaches. *Estel.*

**662 Principles of Research in Archaeology U G 4**

(670) Sp.

*Prereq.: 261 or equiv. plus 5 additional cr. hrs. of Anthropol. or 10 hrs. of work closely related to archaeological field research, and permission of instructor.*

Instruction in basic methods of archaeological analysis, including artifact typology and cultural classification. Methods of excavation and recording. One-day or weekend field sessions. *Baby.*

**664 Archaeological Training Expedition U G 8-16**

(674) Su. 8 cr. hrs. for either term.

*(Full time in expedition camps.)*
*Prereq.: 662 or equiv. or 10 cr. hrs. of work closely related to archaeological field research, and permission of instructor.*

Joint expedition of The Ohio State University and the Ohio State Museum, engaged in excavating prehistoric sites in Ohio. Experience in archaeological field work. *Baby.*

**693 Special Problems U G 1-4**

(700) A, W, Sp.

*Prereq.: 10 cr. hrs. of Anthropol. and permission of instructor.*

- a. Theory
- b. History
- c. Anthropological Linguistics
- d. Research Methodology
- e. Prehistory
- f. Ethnography
- g. Physical Anthropology
- h. Unclassified

**803 Seminars in Anthropology G 3**  
(820) A, W, Sp.

Fields of specialization are listed under the description of 693, and registration in 803 should be followed by an alphabetical letter indicating the field of the seminar.

**896 Interdepartmental Seminar in G 1-3**  
**Polar and Alpine Studies**  
Sp.  
(See under Interdepartmental Seminars.)**899 Interdepartmental Seminar G 1-5**  
A, W, Sp.  
(See under Interdepartmental Seminars.)**999 Research in Anthropology G Arr.**  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.

## Architecture

Office: 106 Brown Hall, 190 West 17th Avenue.  
PROFESSORS †WHITAKER (Director), BAUMER (Emeritus), †BORCHERS, †CLARK, †PHILLIAN, RONAN (Emeritus), †TILLEY, and WILSON; ASSOCIATE PROFESSORS †BRINKERS, †BOWSER, and †CODDINGTON; ASSISTANT PROFESSOR DIPNER; ADJUNCT ASSISTANT PROFESSOR PASSE; INSTRUCTORS; and LECTURERS.

**111 Introductory Architectural Design U 4**  
(411) A. 1 cl., 9 lab. hrs.  
Open only to students enrolled in the School of Architecture.

An introduction to architectural design, through exercises in graphics, delineation, techniques, and space organization. Library research and individual criticism. Bowser and Staff.

**112 Introductory Architectural Design U 4**  
(412) W. 1 cl., 9 lab. hrs.  
Prereq.: 111.  
Continuation of 111.**113 Introductory Architectural Design U 4**  
(413) Sp. 1 cl., 9 lab. hrs.  
Prereq.: 112.  
Continuation of 112.**211 Elementary Architectural Design U 5**  
(511) A. 15 lab. hrs.  
Prereq.: 113.

Elementary problems in architectural design dealing with organization of space for human occupancy. Library research, individual criticism, and lectures. Tilley and Staff.

**212 Elementary Architectural Design U 5**  
(512) W. 15 lab. hrs.  
Prereq.: 211.  
Continuation of 211.**213 Elementary Architectural Design U 5**  
(513) Sp. 15 lab. hrs.  
Prereq.: 212.  
Continuation of 212.**393 Special Studies in Architecture U 1-5**  
A, W, Sp.  
Prereq.: Permission of the School.  
For students not majoring in Arch. who desire to pursue special studies in the field of Arch.  
Repeatable to a maximum of 15 cr. hrs.**511 Intermediate Architectural Design U 5**  
(611) A. 15 lab. hrs.  
Prereq.: 213.

Intermediate problems in architectural design dealing with space analysis and site planning; presented in an integrated and related series of building types. Clark and Staff.

**512 Intermediate Architectural Design U 5**  
(612) W. 15 lab. hrs.  
Prereq.: 511.  
Continuation of 511.**513 Intermediate Architectural Design U 5**  
(613) Sp. 15 lab. hrs.  
Prereq.: 512.  
Continuation of 512.**521 Elementary Architectural Construction U 3**  
A. 1 cl., 6 lab. hrs.  
Prereq.: Eng. Mech. 203.

Composition, manufacture, physical properties, standards, and uses of basic building materials. Theory, methods, codes, and specifications of architectural construction, preparation of contract drawings. Dipner and Staff.

**522 Elementary Architectural Construction U 3**  
W. 1 cl., 6 lab. hrs.  
Prereq.: 521.  
Continuation of 521.**523 Elementary Architectural Construction U 3**  
Sp. 1 cl., 6 lab. hrs.  
Prereq.: 522.  
Continuation of 522.**601 History of Ancient Architecture U 3**  
(604) A. 3 cl.  
Analysis of primitive structures and ancient architecture before the Christian era to illustrate basic principles of shelter, natural building techniques, and organization of space. Borchers.**602 History of Medieval and Renaissance Architecture U 3**  
(605) W. 3 cl.  
Analysis of architecture from the early Christian era through the Baroque, related to the spirit of the age, social organization, and increasing structural knowledge. Borchers.**603 History of Contemporary Architecture U 3**  
(606) Sp. 3 cl.  
Analysis of architecture from the Industrial Revolution to the present, reflecting changes of society, fashion and architectural practice, new materials and structural techniques. Borchers.



**611 Advanced Architectural Design U 6**

(711) A. 18 lab. hrs.

Prereq.: 513.

Advanced problems in architectural design dealing with space organization in relation to group composition and community patterns. Library research and individual criticism. *Phyllian and Staff.*

**612 Advanced Architectural Design U 6**

(712) W. 18 lab. hrs.

Prereq.: 611.

Continuation of 611.

**613 Advanced Architectural Design U 6**

(713) Sp. 18 lab. hrs.

Prereq.: 612.

Continuation of 612.

**621 Intermediate Architectural Construction U 4**

A. 2 cl., 6 lab. hrs.

Prereq.: 513, 523 and concur. 661, 662, 663.

Continuation of composition, manufacture, physical properties, standards, and uses of basic building materials. Theory, methods, codes and specifications of architectural construction, preparation of contract drawings. *Wilson.*

**622 Intermediate Architectural Construction U 4**

W. 2 cl., 6 lab. hrs.

Prereq.: 621.

Continuation of 621.

**623 Intermediate Architectural Construction U 4**

Sp. 2 cl., 6 lab. hrs.

Prereq.: 622.

Continuation of 622.

**661 Architectural Building Equipment U 4**

A. 3 cl., 3 lab. hrs.

Prereq.: Concur. 611, 612, 613.

Fundamentals of building services; installation of approved equipment; application of building, fire prevention and safety codes; specifications and preparation of working drawings. *Dipner and Passe.*

**662 Architectural Building Equipment U 4**

W. 3 cl., 3 lab. hrs.

Prereq.: 661.

Continuation of 661.

**663 Architectural Building Equipment U 4**

Sp. 3 cl., 3 lab. hrs.

Prereq.: 662.

Continuation of 662.

**689 Inspection Trip U 2**

(681) Sp.

Prereq.: Arch. or Land Arch., 4th or 5th yr. standing.

Taken between Winter and Spring Quarters. Trip to inspect architects' offices and buildings in Ohio and neighboring states. Written report required.

**693 Special Studies in Architecture U G 1-5**

A, W, Sp.

Prereq.: Permission of the School.

For students majoring in Arch. desiring to pursue special studies not offered in the fixed curriculum.

Repeatable to a maximum of 15 cr. hrs.

**700 Allied Arts U 3**

(707) A. 3 cl.

Prereq.: Arch. 5th yr. standing.

Analysis of arts related to architecture and the expression of the nature of materials in architectural ornament, furniture and furnishings, and the garden. *Borchers.*

**711 Advanced Architectural Design and Thesis U 7**

(714) A. 21 lab. hrs.

Prereq.: 613., Arch. 5th yr. standing.

The thesis problem summarizes all the student's architectural experiences as an undergraduate; and includes a complete analysis of building types, library research, design presentation, and working drawings. *Coddington and Staff.*

**712 Advanced Architectural Design and Thesis U 7**

(715) W. 21 lab. hrs.

Prereq.: 711.

Continuation of 711.

**713 Advanced Architectural Design and Thesis U 10**

(716) Sp. 30 lab. hrs.

Prereq.: 712.

Continuation of 712.

**721 Advanced Architectural Construction U 5**

(781) A. 3 cl., 6 lab. hrs.

Prereq.: Concur. 714, Arch. 5th yr. standing.

Theory and methods, codes and specifications pertaining to basic parts of advanced architectural construction, and preparation of working drawings. *Wilson.*

**722 Advanced Architectural Construction U 5**

(782) W. 3 cl., 6 lab. hrs.

Prereq.: 721.

Continuation of 721.

**723 Advanced Architectural Construction U 5**

(783) Sp. 3 cl., 6 lab. hrs.

Prereq.: 722.

Continuation of 722.

**751 Professional Practice U 3**

(754) A. 3 cl.

Prereq.: 5th yr. standing in Arch.

Organization of the construction industry as background for legal and economic bases of architectural documents: programs, designs, working drawings, specifications, contracts, bonds, supervision forms. *Clark.*

**752 Professional Practice** U 3  
(755) W. 3 cl.

*Prereq.: 5th yr. standing in Arch.*

Procedural and substantive aspects of architectural practice: office organization, private and governmental relations, code compliance, estimates, and bid analysis exercises assigned from research materials. *Clark.*

**801 Seminar** G 2  
A. 2 cl.

*Prereq.: Admission to graduate curriculum in architecture or permission of instructor.*

Evolution of the professional practice of architecture. Developments in architectural theory and education. Problems in the contemporary practice of architecture. *Brinkers.*

**802 Seminar** G 2  
W. 2 cl.

*Prereq.: 801.*

Continuation of 801. *Brinkers.*

**803 Seminar** G 2  
Sp. 2 cl.

*Prereq.: 802.*

Continuation of 802. *Brinkers.*

**811 Advanced Architectural Design** G 5  
A, W, Sp. 15 lab. hrs.

*Prereq.: Admission to graduate curriculum in architecture.*

Advanced problems in architectural design of complex buildings and building groups for contemporary society. Analyses of the economic bases for building and of the technical requirements of the program. *Brinkers and Staff.*

**812 Advanced Architectural Design** G 5  
A, W, Sp. 15 lab. hrs.

*Prereq.: 811.*

Continuation of 811.

**871 Special Studies in Architecture** G 1-5  
A, W, Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

- .01 Architectural Education
- .02 Architectural Photogrammetry
- .03 Building Production
- .04 Control of Architectural Environment
- .05 Historical Analysis of Building Types
- .06 Perception in Architecture
- .07 Protective Construction
- .08 Structural Form and Behavior in Architecture
- .09 Theory of Architecture
- .10 Urban Design

**899 Interdepartmental Seminar** G 1-5  
A, W, Sp.

(See under Interdepartmental Seminars.)

**999 Research in Architecture** G Arr.  
(950) A, W, Sp.

Research for thesis purposes only.

## Arts and Sciences Survey Courses

**001 Orientation to the College of Arts and Sciences** U 0

(401) A, W, Sp.

*Prereq.: 1st qtr. freshmen.*

Conferences for orientation of new students in the University and the College of Arts and Sciences.

**605† Foundations of Contemporary Civilization** U G 5

A.

A study of the major movements of thought in science, social philosophy, the humanities, and religion in the development of Western civilization. *Brown.*

**608 Development of Modern Science** U G 5  
Sp. 5 cl.

*Prereq.: 4th yr. standing.*

The nature of science and its place in human culture as revealed by detailed sequences of discovery from the history of its development. *LaRocque.*

**750 Arts-Graduate Course** U G 0  
A, W, Sp.

*Prereq.: Senior standing and approval by the Honors Committee of the College of Arts and Sciences and the Graduate School.*

A progress grade will be given at the end of each quarter. At the conclusion of the program, course credits and final grades will be assigned.

Registration in this course constitutes full-time enrollment, unless otherwise specified.

A program leading to the simultaneous award of the Bachelor of Arts and Master of Arts degrees.

## Astronomy

Offices: 106 Orton Hall, 155 South Oval Drive. Perkins Observatory, Delaware, Ohio.

PROFESSORS †SLETTEBAK (Chairman), BOBROVNIKOFF (Emeritus), †CZYZAK, †KEENAN, †KO, and †KRAUS; ASSOCIATE PROFESSOR †MITCHELL; ASSISTANT PROFESSORS †CAPRIOTTI, †COLLINS, †DeJONG, and †ROARK; LECTURER †BYARD.

**101 General Astronomy I** U 5  
(401) A. 4 cl., 1 2-hr. lab.

*Prereq.: Eligibility for Math. 150.*

*Not open to students with credit for 150.*

Astronomy 101 and 102 form a comprehensive introduction to modern astronomy. 101 deals with the solar system and the earth as an astronomical body. *Roark.*

**102 General Astronomy II** U 5  
(402) W. 4 cl., 1 2-hr. lab.

*Prereq.: 101.*

*Not open to students with credit for 150.*

A continuation of 101 with emphasis on the stellar universe and physical astronomy. *Roark.*



**150 Descriptive Astronomy U 5**

(500) A, Sp. 5 cl.

Not open to students with credit for 101 and 102.

 An introductory course emphasizing the place of astronomy in man's cultural and scientific development. *Collins, Mitchell, Slettebak.*
**601†\* History of Astronomy U G 3**

W. 3 cl.

Prereq.: 101-102, or 150, or permission of instructor.

 Babylonian, Egyptian, Chinese, and Mayan Astronomy. Graeco-Roman period and Middle Ages. Renaissance and Reformation. Modern trends in Astronomy. *Keenan.*
**605\* Introduction to Celestial Mechanics U G 3**

W. 3 cl.

Prereq.: Math. 255 or 558 and Physics 113 or 232 and 233 or permission of instructor.

 Application of the laws of motion to planets, satellites, and stars. The two-, three-, and N- body problems. Introduction to orbit and perturbation theory. *Collins.*
**611 Spherical Astronomy U G 3**

W. 3 cl.

Prereq.: 101 or 150 or equiv.; Math. 152 or 254 or (538), and Physics 112 or 231.

 The application of spherical trigonometry to stellar positions and motions; stellar co-ordinate systems; time; fundamental measurements of star positions. *Slettebak.*
**650 Stellar Astronomy U G 3**

A. 3 cl.

Prereq.: 102 or 150; Math. 152, (538), or 254; Physics 232 and 233; or permission of instructor.

 Distances, motions, luminosities, and masses of stars. The motions and distribution of stars and interstellar matter. Star clusters and galaxies. *Czyzak.*
**651 Introduction to Astrophysics U G 3**

W. 3 cl.

Prereq.: Physics 551 or equiv. and Math. 255 or 558.

 Study of radiation from stars and nebulae to determine the composition and physical conditions of matter in and between the stars. Stellar nuclear energy sources. *Czyzak.*
**652 Solar System U G 3**

Sp. 3 cl.

Prereq.: 101 or 150; Math. 152, (538), or 254; Physics 232 or 233; or permission of instructor.

 The physical nature of the solar surface, planets, satellites, comets, asteroids, meteors, and diffuse matter in the solar system. Cosmogony of the solar system. *Roark.*
**693 Individual Studies in Astronomy U G 1-15**

(700) A, W, Sp.

Prereq.: 10 cr. hrs. of Astron., Math. (538), or 254 and Physics 112-113 or 232-233.

Repeatable.

 Independent library or laboratory work on a special problem in observational or theoretical astronomy at the Perkins or McMillin Observatory. *Perkins Observatory Staff.*
**785 Observational Techniques I U G 3**

(751) A.

Prereq.: 611 and 651 and Physics 636 and 751, or permission of instructor.

 Astronomical spectroscopy. Astrometry. Photographic and photoelectric Photometry. *Mitchell.*
**786 Observational Techniques II U G 3**

(752) W.

Prereq.: 785.

Continuation of 785.

**787 Observational Techniques III U G 3**

(753) Sp.

Prereq.: 786.

Continuation of 786.

**Radio Astronomy Instrumentation**

(See Elec. E. 715.)

**801 Astronomy Colloquium I G 1**

A. 1 cl.

Prereq.: 10 cr. hrs. each in 600 courses or higher in Astron., Physics, and Math., or permission of instructor.

Repeatable.

Seminars conducted on astronomical topics of current interest. Students will participate actively in the presentation and discussion of materials.

**802 Astronomy Colloquium II G 1**

W. 1 cl.

Prereq.: 801.

Continuation of 801.

**803 Astronomy Colloquium III G 1**

Sp. 1 cl.

Prereq.: 802.

Continuation of 802.

**811†\* Physical Foundations of Astronomy I G 3**

A. 2 1½-hr. cl.

Prereq.: Physics 521, 541, 551, 551 and Math. 558 or permission of instructor.

 Aspects of theoretical physics of special significance to astrophysical problems, including celestial mechanics, interaction of radiation with matter, and special and general relativity. *Capriotti.*
**812†\* Physical Foundations of Astronomy II G 3**

W. 2 1½-hr. cl.

Prereq.: 811.

Continuation of 811.

**813†\* Physical Foundations of Astronomy III G 3**

Sp. 2 1½-hr. cl.

Prereq.: 812.

Continuation of 812.

**821†\* Stellar Atmospheres and Diffuse Matter in Space I** G 3

A. 2 1½-hr. cl.

Prereq.: 651, Physics 742, 751, Math. 550, 556.

Stellar classification and spectra of peculiar stars. Interpretation of continuous and line spectra of stars. Diffuse matter in space. Magnetohydrodynamics. *Collins, Keenan.*

**822†\* Stellar Atmospheres and Diffuse Matter in Space II** G 3

W. 2 1½-hr. cl.

Prereq.: 821.

Continuation of 821.

**823†\* Stellar Atmospheres and Diffuse Matter in Space III** G 3

Sp. 2 1½-hr. cl.

Prereq.: 822

Continuation of 822.

**841\* Dynamical Astronomy I** G 3

A. 2 1½-hr. cl.

Prereq.: 651, Math 550 and 556, Physics 715 or Math. 521 or permission of instructor.

Stellar statistics and kinematics. Galactic structure. External galaxies, cosmology, and cosmogony. *Keenan, Collins, Mitchell.*

**842\* Dynamical Astronomy II** G 3

W. 2 1½-hr. cl.

Prereq.: 841.

Continuation of 841.

**843\* Dynamical Astronomy III** G 3

Sp. 2 1½-hr. cl.

Prereq.: 842.

Continuation of 842.

**850 Current Topics in Astronomy** G 3

A, W, Sp.

Prereq.: 651.

Repeatable with permission of staff.

Staff members and visiting lecturers will present material on their current research problems.

**851\* Stellar Interiors and Stellar Evolution I** G 3

A. 2 1½-hr. cl.

Prereq.: 651, Physics 551, 742, Math. 550, 556.

The equilibrium equations and physics of stellar interiors. Computation of stellar models and evolutionary tracks. Stellar pulsation. Origin of the elements. *Collins, Capriotti, Keenan, Czyzak.*

**852\* Stellar Interiors and Stellar Evolution II** G 3

W. 2 1½-hr. cl.

Prereq.: 851.

Continuation of 851.

**853\* Stellar Interiors and Stellar Evolution III** G 3

Sp. 2 1½-hr. cl.

Prereq.: 852.

Continuation of 852.

**862 Radio Astronomy Theory I** G 3

(896) W. 3 cl.

Prereq.: 651 and Physics 794 or Elec. E. 810 or permission of instructor.

Fundamental theory of radio astronomy and interpretation of basic radio observations. Given in collaboration with the Department of Electrical Engineering. *Kraus, Ko, De Jong.*

**863 Radio Astronomy Theory II** G 3

(897) Sp. 3 cl.

Advanced theory of generation, propagation and absorption of cosmic radio waves. Given in collaboration with the Department of Electrical Engineering. *Kraus, Ko, De Jong.*

**895 Interdepartmental Seminar in Radio-Astronomy** G 1-5

A, W, Sp.

(See under Interdepartmental Seminars.)

**999 Research in Astronomy and Astrophysics** G Arr.

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Aviation**

Office: Ohio State University Airport, 3180 Case Road. ASSOCIATE PROFESSORS EGGSPUEHLER (Chairman) and JACKSON; ASSISTANT PROFESSORS BILLINGS and HUBBARD; INSTRUCTORS; and LECTURERS.

**111 Introduction to Aviation** U 3

(507) W. 3 cl., 1 field trip.

A comprehensive study of our air transportation system.

**201 Primary Flight** U 1

(506) A, W, Sp. 5 lab.

Prereq.: 211 or concur. and secure permission slip at University Airport prior to scheduling.

A laboratory course provided for students to achieve greater understanding of 211.

**211 Elements of Aviation** U 4

(505) A, W, Sp. 3 cl., 2 lab.

Prereq.: Math. 116 or 150, Physics 111.

Problems in fundamentals of flight and aircraft operation. Objective studies of aviation laws and regulations.

**401 Advanced Flight** U 1-4

(600) A, W, Sp. 5 lab.

Prereq.: 201 and secure permission slip at University Airport prior to scheduling.

The student must register for specific studies in areas indicated below, and may register for more than one at a time.

Repeatable to a maximum of 4 cr. hrs.

- Precision Flight Maneuvers
- Flight Navigational Procedures
- Performance Evaluation
- Flight Safety



- 411 Aircraft Performance U 3**  
(601) A. 3 cl.  
Prereq.: 211.

Studies of airframe components, performance and design characteristics, power plants, and federal certification of aircraft equipment.

- 415 Air Traffic Control and Flight Meteorology U 3**  
(603) W. 3 cl.  
Prereq.: 211, Physics 120.

Precision navigational techniques for position control, flight planning and cruise control, aids to navigation, fundamentals of meteorological analysis, and effects of weather on flight.

- 419 Analysis of Problems in Aviation Safety U 3**  
(605) Sp. 3 cl.  
Prereq.: 411, 415.

Detailed analysis of standard and proposed procedures relating to safety, studies in pilot behavior, accident investigation and safety programs.

## Biochemistry

Office: 101 Vivian Hall, 2121 Fyffe Road.

PROFESSORS †SNELL (Acting Chairman), †DEATH-ERAGE, and †MOORE; ASSOCIATE PROFESSORS †BULEN and †SERIF; ASSISTANT PROFESSORS †BEAUDREAU, †BEHRMAN, †CLEMENTS, †DIAMONDSTONE, †IVES, †MENDICINO, and †ZUBKOFF.

- 431 Chemistry of Foods and Food Processing U G 5**  
(613) W. 3 cl., 2 3-hr. labs.  
Prereq.: Chem. 211 and 231 or equiv.

The chemical, physical, and biological nature of foods in relation to handling, processing, packaging, quality, and consumer acceptance. *Deatherage*.

- 511 Introduction to Biological Chemistry U G 4**  
(610) A, W, Sp. 3 cl.  
Prereq.: Chem. 102 or 112 or 231 and 2 qtrs. of biol. sc.

An introductory course in biochemistry dealing with the molecular basis of structure and metabolism of plants, animals, and microorganisms.

- 521 Introduction to Biological Chemistry: Laboratory U G 3**  
(611) A, W, Sp. 2 cl., 2 2-hr. labs.  
Prereq. or concur.: 511.

Laboratory work to accompany 511. Assay techniques for chemical constituents and metabolic reactions of living cells.

- 531 Biochemistry of Animal Function U G 3**  
(620) A, Sp. 3 cl.  
Prereq.: Chem. 231 or equiv.

Biochemical bases of animal function and nutrition.

- 541 Biochemistry of Animal Function Laboratory U G 3**  
(621) A, W, Sp. 2 3-hr. labs.  
Prereq. or concur.: 411.

Laboratory course to accompany 411. Assay techniques for chemical constituents and metabolic reaction in animals. Biochemistry of nutritional deficiency.

- 611 General Biological Chemistry U G 5**  
(705) A. 3 cl.  
Prereq.: Chem. 241, 242, 243, 244 or 251, 252, 253, 254 or equiv.; Chem. 531 recommended. 611, 612, and 613 should be taken in sequence.

An intensive treatment of modern biochemistry. Protein structure, thermodynamics of enzyme catalyzed reactions and oxidation-reduction reactions in living systems.

- 612 General Biological Chemistry U G 5**  
(707) W. 3 cl.  
Prereq.: 611.

An intensive treatment of modern biochemistry. Chemistry and intermediary metabolism of lipids and carbohydrates.

- 613 General Biological Chemistry U G 5**  
(709) Sp. 3 cl.  
Prereq.: 612.

An intensive treatment of modern biochemistry. Intermediary metabolism of proteins and nucleic acids; function of vitamins and hormones.

- 621 General Biological Chemistry Laboratory U G 5**  
(706) A. 2 4-hr. labs.  
Prereq. or concur.: 611, 621, 622, and 623 should be taken in sequence.  
Laboratory to accompany 611.

- 622 General Biological Chemistry Laboratory U G 5**  
(708) W. 2 4-hr. labs.  
Prereq.: 621.  
Laboratory to accompany 612.

- 623 General Biological Chemistry Laboratory U G 5**  
(710) Sp. 2 4-hr. labs.  
Prereq.: 622.  
Laboratory to accompany 613.

- 693 Individual Studies U G 2-5**  
(701) A, W, Sp.  
Prereq.: 6 qtr. hrs. of biochemistry

- 785 Research Principles and Techniques U G 2-5**  
(701) A, W, Sp.  
Prereq.: Permission of instructor.

- 811†\* Proteins and Nucleic Acids G 3**  
(807) A. 3 cl.  
Prereq.: 613 or equiv.

An examination of the current research on the chemistry and metabolism of proteins and nucleic acids. *Ives*.

**821†\* Enzymes** G 3  
(808) W. 3 cl.

Prereq.: 613 or equiv.

Advanced studies of enzymes and the mechanism of enzyme action. *Diamondstone*.**831†\* Carbohydrates** G 3  
(809) Sp. 3 cl.

Prereq.: 613; Chem. 635 recommended.

Advanced study of the metabolism of the carbohydrates. *Mendicino*.**850 Seminar in Biological Chemistry** G 2  
(804) A, W, Sp. 1 or 2 cl.**851\* Special Topics in Food Chemistry** G 2  
(813) W. 2 cl.

Prereq.: 431, Chem. 243, 531, 532 or equiv.

Advanced study of the chemistry of foods. *Deatherage*.**898 Interdepartmental Seminar in Nutrition and Food Technology** G 1  
Sp. 1 cl.  
(See under Interdepartmental Seminars)**999 Research in Biochemistry** G Arr.  
(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Biology**

Office: 101 Botany and Zoology Building, 1735 Neil Avenue.

PROFESSORS †HARVEY, †MEYER, †J. N. MILLER, †MOORE, †RAY, †TIDD, and †WHARTON; ASSOCIATE PROFESSORS †BRITT, †BURLEY, †GIESY, †GILBERT, †GILTZ, †GOOD, †HOUSE, †PADDOCK, †PARRISH, †PLAINE, †RUDOLPH, and †VALENTINE; ASSISTANT PROFESSORS †A. BROCKWAY, BYERS, †L. COLINVAUX, †P. COLINVAUX, DECKER, KESSLER, †KLIKOFF, KOOB, LIN, MENEFEE, and SKAVARIL.

**102 Principles of Biology** U 5  
(402) A, W, Sp. 3 cl., 2 1-hr. labs.A study of biological principles common to all living things: protoplasm, cells, development, organization, coordination, genetics, homeostasis, ecology, evolution and systematics. *Brockway, Koob, Menefee and Staff*.**130 Principles of Heredity** U 5  
(403) A, W, Sp. 5 cl.  
Prereq.: 102.

Not open to majors in basic biological sciences.

A general course in principles of heredity, emphasizing transmission genetics.

**410 Introduction of Ecology** U 5  
(505) A, W. 5 cl., two Saturday field trips.  
Prereq.: Bot. 100 and 101, or 102, Zool. 101.An introduction to biotic communities, inter-relations of a community with its physical environment, and the application of ecological principles to human affairs. *Colinvaux, Klikoff*.**420 Evolution** U 5  
(509) A, Sp. 5 cl.

Prereq.: Bot. 100 and 101, or 102, Zool. 101.

The principles of organic evolution. Demonstrations and discussions of the facts and theories underlying the evolution of man and other living things. *Tidd*.**630 Genetics** U G 5  
(604) A, W. 5 cl.

Prereq.: 102, Zool. 101 and Bot. 102 or equiv., Math. 116 or equiv.

A fundamental study of transmission, physiological and evolutionary genetics, emphasizing integrating principles. *House*.**631 The Cytological Basis of Genetics** U G 5  
(618) W. 2 cl., 3 2-hr. lab.

Prereq.: 630 or equiv.

Documentation of the correlation between genetic principles and chromosome behavior by studying the mitotic and meiotic cells of several organisms with oil immersion microscopy. *Paddock*.**640 Cell Biology** U G 5  
(617) W. 3 cl., 1 4-hr. lab.

Prereq.: 102, Bot. 102, Zool. 101, 5 cr. hrs. organic chem., 10 cr. hrs. biol. sc. in courses 300 level or higher, and 5 additional cr. hrs. of chem. or biol. sc. in courses 300 level or higher.

A study of subcellular structure and metabolism emphasizing their involvement in energy and information flow. *Byers, Giesy, Parrish*.**650 Analysis and Interpretation of Biological Data I** U G 5  
(630) A, Sp. 4 cl., 1 2-hr. lab.

Prereq.: Math. 150 or equiv. and 15 cr. hrs. of 300 level or higher courses in a department of the College of Agriculture and Home Economics or in a department of Biological Sciences.

Methods of analyzing biological data including: sampling, descriptive statistics, distributions, group comparisons, statistical inference, one-way and nested analysis of variance and linear regression and correlation. *Skavaril*.**651 Analysis and Interpretation of Biological Data II** U G 5  
W. 4 cl., 1 2-hr. lab.  
Prereq.: 650.

Methods used in analyzing data classified in two or more ways: Latin-square, split-plot and factorial designs, analysis of covariance, data transformations, multiple regression and least-squares.

**670 Radiation Biology** U G 5  
(699) Su.

Prereq.: High-school teacher status and Zool. 101 or equiv., Physics 514 or concur., and 10 cr. hrs. in general chem. and physics.

(N.S.F. Summer Institute students only.)

A study of the principles of radiation biology and their application to high school and college teaching. *Burley*.**730\* Cytogenetics** U G 3 or 5  
(740) Sp. 3 cl., 2 2-hr. lab.  
Prereq.: 630 and 631.Origin, transmissibility, and effects of chromosomal aberrations; their usefulness in practical breeding and in attacks on fundamental cytogenic problems. *Paddock*.



**810† Ecological Investigations of Biotic Areas of North America** G 8

(804) Su. (1st term).

Prereq.: Bot. 620 or Zool. 650 or 661, 20 additional grad. cr. hrs. in biol. sc. and permission of instructor. Fee of \$145 for travel and subsistence.

Full time of the student will be required traveling and living away from the campus. Intensive field work in a variety of environments will involve both supervised and independent study.

**830†\* Physiological Genetics** G 5

Sp. 5 cl.

Prereq.: 1 qtr. each of Physiol., Embryol., and Biochem.

A consideration of the theoretical and experimental aspects of Physiological genetics, pertaining to the concept of the gene, its biochemical nature, replication, and mutation. Plaine.

**831\* The Nature of Gene Action** G 5

Sp. 5 cl.

Prereq.: 1 qtr. each of Physiol., Embryol., and Biochem.

A study of the action of genes at all levels of expression with special emphasis on the role of genes in developmental processes. House.

**832 Mathematical Genetics** G 5

(816) Sp. 4 cl., 2-hr. lab.

Prereq.: 30 cr. hrs. in genetics, Math., and statistics.

The construction of mathematical models, use of path coefficients, generation matrices, least-squares and maximum likelihood methods for estimating genetic parameters and breeding values in quantitative genetics. Harvey.

**860 Principles of Systematics** G 3

(817) A. 2 cl., 2 hr. lab.

Prereq.: 15 cr. hrs. of Zool or Entom. at or above the 600 level.

A study of the principles and techniques used in the identification, classification, and nomenclature of organisms. Valentine.

**Biophysics**

Office: 200 Lord Hall, 124 West 17th Avenue.

PROFESSORS †LIPETZ (Acting Chairman), †BLACKWELL, †BOZLER, †MOORE, †MYERS, †NELSON, †SNELL, and †VAN WINKLE; ASSOCIATE PROFESSORS †HOLLANDER, †McCONNELL, †SMITH, and †STOW.

**Principles of Biophysics**

(See under Physiol. 645.)

**Radiation Biophysics**

(See under Physiol. 646.)

**Physical Instrumentation for Biologists**

(See under Physiol. 648.)

**700 Seminar in Biophysics** U G 1

A, W, Sp. 1 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Staff.

**702 Advanced Experimental Methods in Biophysics** U G 1-3

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

Staff.

**793 Individual Studies in Biophysics** U G 1-5

(701) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Staff.

**800 Advanced Topics in Biophysics** G 3

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

Staff.

**999 Research in Biophysics** G Arr.

(950) A, W, Sp.

Research for thesis and dissertation purposes only. Staff.

**Botany**

Office: 102 Botany & Zoology Building, 1785 Neil Avenue.  
 PROFESSORS †SWANSON (Chairman), †ALEXANDER, †ALLISON, †BLAYDES, †BOHNING, †FISHER, †JOHNSON, †KRIEBEL, †LEBEN, †MEYER, †SCHMITTHENNER, †TAFT, †VERNON, WALLER (Emeritus), and WILSON (Emeritus); ASSOCIATE PROFESSORS †BURLEY, †ELLETT, †GIESY, †GILBERT, †HERR, †PADDOCK, †POPHAM, †RUDOLPH, †SCHMITT, †WEISHAUP, †WILLIAMS, and †ZABKA; ASSISTANT PROFESSORS BART, BRADFUTE, †L. COLINVAUX, DECKER, GORDON, †KLIKOFF, KOOB, LAMPE (Emeritus), †PLATT, †SMITH, SNYDER, STUCKEY, and TROXEL.

**100 General Botany** U 5

(401) A, W, Sp. 5 cl.

Not open to students with credit for 102 or 500.

An observation and discussion course in basic processes and structures of plants, their relation to the environment, and their importance to other organisms, especially man. Staff.

**101 General Botany** U 5

(402) A, W, Sp. 5 cl.

Prereq.: 100.

Reproduction, heredity, variation and evolution in the various plant groups; non-green plants; plant distribution; relation of plants to man and conservation.

**102 General Botany U 5**

(408) A, W, Sp.

Prereq.: Biol. 102.

Not open to students with credit for 100 or 500.

An observation and discussion course with emphasis on the structure, processes, and reproduction of the seed plants.

**410 Local Flora U 5**

(406) Sp. 4 2-hr. cl.; several Saturday field trips.

Prereq.: 101, or 102 or 500.

A laboratory, field and discussion course in identifying common Ohio plants; emphasis on taxonomic principles, use of keys and manuals, and field recognition of plants. Fisher, Weishaupt, Stuckey.

**430 Plant Physiology U 3 or 5**

(805) A, W. 3 cl., 2 2-hr. labs.

Prereq.: 101 or 102 or 500; 10 cr. hrs. Chem.

A fundamental course in plant physiology; solutions, colloidal systems, diffusion, osmotic quantities, transpiration, absorption and translocation of water, enzymes, photosynthesis. Swanson, Zabka, Platt, Burley.

**431 Plant Physiology U 3 or 5**

(806) W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 430.

A continuation of 430; photosynthesis, respiration and metabolic synthesis, absorption and utilization of mineral salts, digestion, translocation of solutes, growth, reproduction, dormancy. Swanson, Zabka, Platt, Burley.

**440 The Plant Kingdom U 5**

Sp. 5 cl.

Prereq.: 101 or 102 or 500.

Evolutionary sequences in living representatives of the great plant groups; emphasis on forms especially significant to man. Blaydes.

**500 Basic Concepts in Botany U G 5**

(672) A, W, Sp.

Prereq.: 10 hrs. Chem.

Not open to students with credit for 100 or 102.

Graduate credit only to participants in the Academic Year Institute.

A course in the basic concepts of botany for advanced students with a fundamental knowledge of chemistry. Taft.

**610 Field Botany U G 4**

(664) Su. (1st term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Given only at Franz Theodore Stone Laboratory.

Collection, preservation, field and laboratory identification, and local distribution of plants of the major groups. Fisher.

**611 Higher Aquatic Plants U G 4**

(669) Su. (2nd term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Given only at Franz Theodore Stone Laboratory.

The aquatic plants of the Lake Erie region other than the algae. Field and laboratory work on their identification and ecological relation. Fisher.

**612 Taxonomy of Vascular Plants U G 5**

(673) A. 4 2-hr. lab. several Saturday field trips.

Prereq.: 410 or 610, 10 additional cr. hrs. in Biol. Sc.

A laboratory, field, and discussion course concerning the classification of vascular plants; emphasis on taxonomic principles, systems of classification, family characteristics and relationships. Fisher.

**620 Basic Principles of Plant Ecology U G 5**

(601) A, Sp. 3 cl., 1 3-hr. lab., several Saturday field trips, 1 3-day field trip.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

The establishment, development, succession, and dynamics of plant communities and their inter-relations with historic, climatic, soil, and biotic factors. Gilbert, Klikoff.

**621 Field Plant Ecology U G 4**

(674) Su. (2nd term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Given only at Franz Theodore Stone Laboratory.

Principles of plant ecology as exemplified by the study of aquatic terrestrial habitats. Emphasis on field work with supplementary lectures and laboratory work.

**632 Physiology of Aquatic Plants U G 4**

(667) Su. (2nd term).

Prereq.: 101 or 102 or 500 or equiv. and 20 cr. hrs. of Chem.

Given only at Franz Theodore Stone Laboratory.

Lectures, discussions, laboratory and field work on basic topics in the physiology of aquatic plants. Burley.

**640 Bryophytes, Pteridophytes, and Gymnosperms U G 5**

(613) W. 4 2-hr. lab. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Comparative structures and life histories of liverworts, mosses, ferns, conifers. Heritable variations within and among these groups during geologic time. World distribution, past and present.

**641 Morphology of the Angiosperms U G 5**

(614) A. 4 2-hr. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Reproductive mechanisms and processes in angiosperms with application to problems in genetics, plant breeding, and crop production. Blaydes.

**642 Plant Microtechnic U G 5**

(615) W. 2 cl., 3 2-hr. lab.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Principles and methods of preparing permanent plant tissue microscopic preparations. Student has opportunity to prepare a personal slide collection suitable for teaching or research. Blaydes.

**643 Development Plant Anatomy U G 5**

(640) W, Sp. 4 2-hr. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

The initiation and development of tissues and organs of vascular plants. Popham.



**644 Algae U G 4 or 5**

(865) *Sp. 4 2-hr. cl.*  
*Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.*  
*In Summer Qtr. given only at Franz Theodore Stone Laboratory.*

A general course covering identification, growth, reproduction, evolution, distribution and economic importance of the algae. *Taft.*

**650 Plant Genetics U G 5**

(835) *A. 3 cl., 2 2-hr. lab.*  
*Prereq.: 101 or 102 or 500, Biol. 630, 10 additional cr. hrs. in Biol. Sc.*

Effects of lethals, linkage, heterogony, introgression, polyploidy, self-incompatibility, and cytoplasm. Laboratory experience with aceto-carminic smears, colchicine, progeny tests, random number tables, and herbarium specimens. *Paddock.*

**660 Mycology U G 5**

(654) *A. 3 cl., 2 2-hr. lab.*  
*Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.*

A study of structures, life histories, and classification of the fungi. *Schmitt.*

**661 Industrial Mycology U G 3**

(635) *Sp. 2 cl., 1 2-hr. lab*  
*Prereq.: Chem. 231 and 252, 10 cr. hrs. of Biol. Sc. at the 300 level or higher.*

The relation of fungi, especially saprophytic fungi, to human affairs, with emphasis upon their actual and potential applications in industry. *Schmitt.*

**662 Medical Mycology U G 5**

(658) *W. 3 cl., 2 2-hr. lab.*  
*Prereq.: Microbiol. 607 and 10 additional cr. hrs. of Biol. Sc. at the 300 level or higher.*

The fungi pathogenic to man, their structure and distribution, and the importance of human mycotic diseases. *Schmitt.*

**663 Aquatic Mycology U G 4**

(870) *(Su. 2nd term).*  
*Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.*

*Given only at Franz Theodore Stone Laboratory.*  
 A lecture, laboratory, and field course designed to acquaint the student with the fungi found in aquatic habitats including soil water. *Schmitt.*

**693 Individual Studies U G 1-5**

(701) *A, W, Sp.*  
*Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.*

Problems may be selected in the fields of taxonomy, morphology, anatomy, phycology, physiology, ecology, genetics, cytology, mycology, or lichenology.

**720 Ecological Relations of World Vegetation U G 5**

(602) *Sp. 3 cl., 1 3-hr. lab., 1 4-day field trip.*  
*Prereq.: 620.*

A consideration of the distribution pattern and structure of the vegetation of the world with emphasis on North America. *Klikoff.*

**800†\* History of Botany G 3**

(860) *Sp. 3 cl.*  
*Prereq.: 30 cr. hrs. in Biol. Sc.*

A brief survey of the fundamental discoveries that have led to modern concepts in plant science. *Rudolph.*

**809 Botanical Colloquium G 1**

(810) *A, W, Sp.*  
*Repeatable.*

**810†\* Experimental Taxonomy G 5**

(757) *A. 3 cl., 2 2-hr. lab., several Saturday field trips.*  
*Prereq.: 410 or 610 and Biol. 630.*

Biosystematic categories, population analysis of mass collections, individual variations, hybridization, and introgression are studied in relation to the methods and materials of experimental taxonomic research. *Fisher.*

**819 Seminar in Plant Taxonomy G 2**

(835) *A, W, Sp.*  
*Repeatable.*  
*Prereq.: Permission of instructor.*

**829 Seminar in Plant Ecology G 2**

(825) *A, W, Sp.*  
*Repeatable.*  
*Prereq.: 620 and permission of instructor.*

**830 Physiological Methods G 3**

(725) *A. 6 lab. hrs.*  
*Prereq.: 430 and 431, 643, 10 cr. hrs. in organic or biochem.*

Selected research techniques dealing primarily with respiration, photosynthesis, and associated metabolic phenomena. *Burley, Platt, Swanson, Zabka.*

**831 Physiological Methods G 3**

(730) *Sp. 6 lab. hrs.*  
*Prereq.: 430 and 431, 643, 10 cr. hrs. organic or biochem.*

Selected research techniques dealing primarily with solution culture, sterile tissue culture, hormone assay, ion uptake, osmotic relations, and photobiological reactions. *Burley, Platt, Swanson, Zabka.*

**832 Advanced Plant Physiology: Metabolism G 3**

(734) *A. 3 cl.*  
*Prereq.: 430 and 431, Biochem. 511 and 521, or Chem. 531 and 532.*

Advanced study of selected topics, mainly respiration, metabolic syntheses, absorption, and utilization of mineral salts, metabolism of growth substances, photosynthesis, and translocation. *Platt.*

**833 Advanced Plant Physiology: Growth G 3**

(735) *W. 3 cl.*  
*Prereq.: 430 and 431, 10 cr. hrs. organic or biochem., 10 additional cr. hrs. Biol. Sc.*

The physiology of growth and reproduction. Special attention given to the interrelated effects of internal and external factors on these processes. *Meyer, Swanson.*

### 834 Advanced Plant Physiology: Water and Solute Relations G 3

Sp. 3 cl.

Prereq.: 430, 431, 643, 10 cr. hrs. organic or biochem., 5 additional cr. hrs. of Biol. Sc.

Osmotic relations, mechanisms of water and solute uptake and transport; salt metabolism, drought and salt tolerance. Swanson.

### 839 Seminar in Plant Physiology G 1

(820) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

Meyer, Swanson, Platt, Burley, Zabka.

### 849 Seminar in Lichenology G 2

(830) Sp. 2 cl.

Prereq.: Permission of instructor.

Repeatable.

Current problems in lichen symbiosis, morphology, taxonomy ecology, and physiology. Rudolph.

### 860 Advanced Mycology G 3

(754) Sp. 3 2-hr. lab.

Prereq.: 660.

Advanced detailed study of specific groups of fungi, with emphasis on their morphology, cytology, and genetics. Gray.

### 861 Physiology of Fungi G 5

(718) W. 3 cl., 2 2-hr. lab.

Prereq.: 430, 431, 660, 10 cr. hrs. organic or biochem.

The physiology of the nutrition, growth, and reproduction of fungi.

### 869 Seminar in Mycology G 2

A, W, Sp. 1 2-hr. cl. arr.

Prereq.: Permission of instructor.

Repeatable.

Schmitt, Rudolph.

### 896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3

Sp.

(See under Interdepartmental Seminar.)

### 897 Interdepartmental Seminar in Natural Resources G 1

A, W, Sp.

(See under Interdepartmental Seminars.)

### 898 Interdepartmental Seminar in Nutrition and Food Technology G 1

Sp.

(See under Interdepartmental Seminars.)

### 999 Research in Botany G Arr.

(950) A, W, Sp.

Research for thesis and dissertation purposes only.

## Business Organization

Office: 352 Hagerly Hall, 1775 South College Road.

PROFESSORS †MINER (Chairman), †ABRAMOWITZ, †BARTELS, BECKMAN (Emeritus), †BICKELHAUPT, BOWERS, BRUNNER, CRAIG (Emeritus), †CULLMAN, †DAVIDSON, †J. H. DAVIS, R. C. DAVIS (Emeritus), DICE (Emeritus), †DONALDSON, †HICKS, HOAGLAND (Emeritus), JUCIUS (Emeritus), †KINDIG, †PFAHL, †POWELL, †SHERMAN, †STOGDILL, and †STONE; ADJUNCT PROFESSOR †HEALEY; ASSOCIATE PROFESSORS †ALLEN, †BLACK, †BONNER, †CARROLL (Visiting), CORDELL (Emeritus), †DOODY, †ENGEL, FOSTER, †GRAY, †HOWELL, †HOWLAND, †L'ESPERANCE, †MOECKEL, †MORGENROTH, †RIDDELE, †SMITH, †STERN, and WILKINS; ASSISTANT PROFESSORS †BEHLING, †BLACKWELL, BOBBITT, †CLOSE, †COLE, GIBSON, GRABNER, HARDY, †KOLLAT, KROUSE, †MILJUS, †RAPP, ROBESON, and VITT.

### 220 Personal Finance U 3

(551) A, W, Sp. 3 cl.

Prereq.: 2nd yr. standing.

Not open to students in the College of Commerce and Administration majoring in either Accounting or Finance.

Budgeting, credit, borrowing money, bank relationships, savings, insurance, real estate, stocks and bonds, income taxes, social security, annuities, wills, trusts, estates, and taxes. Donaldson, Pfahl, Foster.

### 301 Secretarial Work U 5

(510) A. 5 cl.

Prereq.: Econ. 201 or equiv. and Educ. 011 and 013 or equiv.

Theory and practice of secretarial fundamentals; duties, responsibilities, procedures, and techniques of secretarial work. Hicks.

### 490 Industrial Statistics U 3

(615) A, W, Sp. 3 cl.

Prereq.: Econ. 442 or equiv.

The application of statistical methods to the design and analysis of experiments, with a view to planning, organizing, and controlling the output of industry. Abramowitz, Black, Kindig.

### 500 Principles of Management U G 3

(676) A, W, Sp. 3 cl.

Prereq.: Econ 201 or 402 or equiv.

An intensive examination of the basic fundamentals of organization and management underlying the solution of management problems. Hicks and Staff.

### 510 Legal Environment of Business U 4

(621) A, W, Sp. 4 cl.

Prereq.: 3rd yr. standing.

American legal institutions and sources of law; analysis of basic contractual concepts; aspects of corporation law and public law. Howell, Wilkins and Gibson.

### 601 Business Statistics U G 4

(614) W. 3 cl., 1 2-hr. lab.

Prereq.: Econ 442 or equiv. or Soc. Work 340 or equiv.

Price and production indexes. Analysis of time series. Linear correlation applied to economic and business problems.



**611 Business Law: Agency and Partnerships U G 3**

(623) W. 3 cl.

Prereq.: 510 or equiv.

Legal principles and cases analyzed relating to representation of principals by agents, and to the formation, operation, and dissolution of partnerships. *Wilkins and Staff.*

**612 Business Law: Commercial Paper and Sales U G 3**

(625) A, W, Sp. 3 cl.

Prereq.: 510 or equiv.

Analysis of cases and provisions of the Uniform Commercial Code relating to commercial paper, including checks and notes; sales of personal property and related transactions. *Howell.*

**613 Business Law: Corporations U G 3**

(627) A, W, Sp. 3 cl.

Prereq.: 510 or equiv.

Analysis of legal principles and cases governing the formation, operation, and dissolution of corporations. *Wilkins.*

**620 Corporate Finance U G 4**

(650) A, W, Sp. 4 cl.

Prereq.: Econ. 201 or 402 or equiv. and Acc. 201 or 212 or equiv.

Forms of business organization; corporate securities, financing through securities; sources and management of working capital; administration of income; expansion and combination; reorganization, receivership, and dissolution. *Donaldson, Riddle, and Staff.*

**630 Industrial Production U G 4**

(677) A, W, Sp. 4 cl.

Prereq.: 490 or equiv.

Demand-capacity analysis including product factors; physical factors of design, plant, location, and materials handling; process factors of quality control and maintenance. *Abramowitz and Staff.*

**640 Insurance and Risk U G 4**

(618) A, W, Sp. 4 cl.

Prereq.: Econ. 201 or 402 or equiv.

Principles and practices of insurance and risk management, including personal, business, and social viewpoints in regard to insurance for life, health, property, and liability risks. *Bickelhaupt, Bobbitt, Close.*

**650 Marketing U G 4**

(700) A, W, Sp. 4 cl.

Prereq.: Econ. 201 or 402 or equiv.

Critical survey of field of marketing. Structure, functions, policies, costs, and problems analyzed from consumer and other viewpoints. Emphasis on principles, trends, and quantitative expression. *Davidson and Staff.*

**660 Personnel Management: Fundamentals U G 3**

(686) A, W, Sp. 3 cl.

Prereq.: Econ. 402 or equiv.

Principles and practices of line and staff executives in managing the procurement, development, maintenance, and utilization of an effective and satisfied working force. *Behling, Miljus.*

**670 Real Estate and Urban Land Economics U G 4**

(642) A, W, Sp. 4 cl.

Prereq.: Econ. 201 or 402 or equiv.

Introduction to investment decision making in land resource utilization. Considers factors such as real estate markets, public influence, legal principles, financing, and administration. *Smith, Stone.*

**693 Special Problems U G 1-3**

(799) A, W, Sp.

Prereq.: Graduate or senior standing, or with a 2.5 point average in the field of specialization, and permission of instructor.

Repeatable.

**700 Management Processes: Planning and Controlling U G 5**

A, W, Sp. 5 cl.

Prereq.: 490, 620, 630, 650 or equiv.

Business goals and policies; phases of decision-making; analysis of alternatives; establishing, evaluating, and controlling plans of action.

**701 Management Processes: Organizing U G 4**

A, W, Sp. 4 cl.

Prereq.: 490, 620, 630, 650 or equiv.

Establishing, maintaining, and controlling resources to accomplish business objectives; authority and responsibility relationships; formal and informal organizational arrangements; structure of business systems and procedures.

**702 Management Processes: Motivating and Directing U G 3**

(682) A, W, Sp. 3 cl.

Prereq.: 490, 620, 630, 650 or equiv.

Supervising, directing, motivating, coordinating, and controlling manpower in the business organization. *Miljus, Behling.*

**720 Corporation Finance U G 3**

(730) A, W, Sp. 3 cl.

Prereq.: Permission of instructor.

Open only to students preparing for graduate work in business.

A critical study of the field of corporation finance from an economic point of view. *Foster.*

**721 Managerial Finance U G 3**

(651) A, Sp. 3 cl.

Prereq.: 700 or equiv.

Financial management of business units with emphasis on finance organization structure, collecting and using financial data, judging profitability, liquidity, sources of capital, internal financial operations. *Pfahl, Stone, Foster.*

**722 Investment Management U G 3**

(655) A, W, Sp. 3 cl.

Prereq.: 620 or equiv.

Investment objectives; types of investments and their relative merits; security prices and yields; investment programs; and taxes. *Donaldson, Riddle, Stone.*

**723 Investment Analysis** U G 3  
(657) W, Sp. 3 cl.

Prereq.: 722 or equiv.

Methods of investment analysis; analysis of investment data; principles and standards for selection of specific investments; portfolio management. *Pfahl, Stone.*

**724 The Stock Market** U G 3  
(660) A, Sp. 3 cl.

Prereq.: 620 or equiv.

Practices, procedures, and regulations relating to listing and to buying and selling securities in the organized security markets. *Donaldson.*

**726 Financial Institutions** U G 4  
(674) W. 4 cl.

Prereq.: 620 and Econ. 520 or equiv.

Structure, operations, regulation, and economic significance of financial institutions with emphasis on savings, trust, mortgage lending, consumer lending, regulatory, and investment banking institutions. *Foster, Cole.*

**727 Management of Financial Institutions** U G 3

(670) A. 3 cl.

Prereq.: 620, 726, and Econ. 520 or equiv.

Examination of the objectives, functions, policies, organization, practices, and procedures of financial institutions from the viewpoint of the institutional management. *Rapp.*

**729 Cases in Managerial Finance** U G 3  
(652) W, Sp. 3 cl.

Prereq.: 721 or equiv.

Analysis of qualitative and quantitative financial factors involved in managerial decisions in actual business cases. *Donaldson, Pfahl.*

**731 Industrial Production Management I** U G 4

(685) A, W, Sp. 4 cl.

Prereq.: 700, 701, 702, or equiv.

Manufacturing planning, forecasting, capacity analysis, inventory analysis, make or buy decisions, purchasing, equipment analysis. *Hardy.*

**732 Industrial Production Management II** U G 4

(687) A, W, Sp. 4 cl.

Prereq.: 731 or equiv.

Scheduling and control aspects of manufacturing, production scheduling, quality control, work standards, cost control, variance analysis. *Vitt.*

**734 Office Organization and Management** U G 3

(691) A, W, Sp. 3 cl.

Prereq.: 500 or equiv.

The planning, organizing, and controlling of office work; office standards, business forms, selection of business machines, analysis of office methods. *Hicks.*

**739 Problems in Industrial Production** U G 3

(698) Sp. 3 cl.

Prereq.: 731, 732 or equiv.

Case approach to problem-solving thought in the area of industrial organization and management. *Abramowitz.*

**741 Personal Insurance Planning** U G 4  
(760) A. 4 cl.

Prereq.: 640 or equiv.

Analysis of personal consumer needs for life, health, property, and liability insurance; development of contracts, legal aspects, rates, and the technique of estate programming. *Bickelhaupt.*

**743 Insurance Operations and Regulations** U G 4

(761) W. 4 cl.

Prereq.: 640 or equiv.

Examination of the major functions of insurers of all types; product development, underwriting, rating, re-insurance, marketing systems, loss payment, financial analysis, management, and regulation. *Bickelhaupt.*

**749 Business Risk Management** U G 4  
(764) W, Sp. 4 cl.

Prereq.: 640 or equiv.

Development of insurance and risk management programs for business consumers; risk identification, evaluation and treatment; all lines, including group insurance, business life insurance, and pensions. *Bickelhaupt.*

**750 Marketing** U G 3  
(729) A, W, Sp. 3 cl.

Prereq.: Permission of instructor.

(Open only to students preparing for graduate work in business.)

A critical study of the field of marketing institutions and functions primarily from a social point of view. *J. H. Davis, Doody.*

**751 Managerial Marketing** U G 6  
(702) A, W, Sp. 3 2-hr. cl.

Prereq.: 700, 701, 702 or equiv.

Marketing policies and strategy; organization, demand analysis, product planning, pricing, physical distribution, selling, advertising, sales promotion, and credit from a managerial viewpoint. *J. H. Davis, Stern.*

**753 Retailing** U G 4  
(705) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.

Principles and methods of management as applied to retailing, including location, organization, personnel, buying, inventory control, selling and advertising, services, expenses, and profits. *Davidson, Doody, Kollat.*

**754 Wholesaling** U G 4  
(706) A, Sp. 4 cl.

Prereq.: 650 or equiv.

Nature, history, institutional compositions, competitive factors, economic and government aspects; scientific management of wholesale establishments, including functions of sales, internal operations, and operating expense control. *Davidson, J. H. Davis.*

**755 Principles of Advertising** U G 4  
(716) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.

Management of advertising by clients and agencies. Budgeting, research, media selection, preparation of advertisements, economic and social effects of advertising. *Cullman, Engel.*

**756 Credits and Collections** U G 4  
(709) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.



Nature, instruments, and place of credit in the economy. Management of consumer, mercantile, and bank credit. Analysis of credit risk. Management of collections. Credit control. *Bartels, Miner, Morgenroth.*

### 757 International Marketing U G 4

(720) A, Sp. 4 cl.  
Prereq.: 650 or equiv.

International, foreign, and United States environment of multi-national business; comparative trade systems; management practices and problems in international marketing. *Bartels.*

### 758 Marketing Research U G 4

(704) A, Sp. 4 cl.  
Prereq.: 650 and Econ. 442 or equiv.

The role of research in the solution of marketing problems. Emphasis is on available data analysis and methods of the field investigation. *Minor, Engel, Stern, Blackwell.*

### 761 Personnel Management I: Industrial Relations U G 4

(695) A, Sp. 4 cl.  
Prereq.: 660 or equiv.

Examination of the process of accommodation and rule-making among management, employees, and government relative to their respective goals and strategies, and pertinent legislation and environmental constraints. *Behling, Miljua.*

### 762 Personnel Management II: Compensation Administration U G 4

(693) A, W. 4 cl.  
Prereq.: 761 or equiv.

Managerial and organizational aspects of compensation principles and practices for administrative, operative, and staff employees and in various functional fields.

### 769 Problems in Personnel Management U G 3

(692) A, Sp. 3 cl.  
Prereq.: 761 and 762 or equiv.

Problems and case histories are utilized to develop proficiency in applying principles and developing decision-making powers in regard to personnel and human relation areas. *Miljua, Behling.*

### 771 Real Estate Administration U G 3

(647) Sp. 3 cl.  
Prereq.: 670 or equiv.

Administration of real estate business in the performance of economic functions; the managerial aspects of brokerage, development, construction, property management, and financial firms. *Smith.*

### 772 Real Estate Finance U G 3

(643) A. 3 cl.  
Prereq.: 670 or equiv.

Sources and methods of obtaining funds for real estate investment; financial institutions, legal considerations, the construction industry and cycles, and financing policies, practices, and experiences. *Stone, Smith.*

### 773 Real Estate Valuation U G 3

(646) W. 3 cl.  
Prereq.: 670 or equiv.  
Professional valuation as a guide to business decisions; valuation theory and procedures; factors influencing real estate values, and the selection and analysis of data. *Smith.*

### 780 Micro-Logistics U G 4

(750) Sp. 4 cl.  
Prereq.: 700, Econ. 676 and 677 or equiv.

Management of logistics activities of the firm from the viewpoint of both the provider and user of logistics system components. *Grabner.*

### 799 Business Policy U G 4

A, W, Sp. 4 cl.  
Prereq.: Approved application for B. S. in Business Administration.

Analysis of major policy decisions in the context of the entire philosophical framework of business; emphasis on consideration of inter-relationships of major functions of business. *Senior Staff.*

### 800 Principles and Techniques of Research G 3

(800) A, Sp.  
Prereq.: 500, 620, 650, Econ. 442 or equiv.

Principles of research methods in business and the use of research by management. The scientific method in business, sampling theory, variable analysis, research cases. *Miner, Morgenroth, Engel.*

### 801 Application of Quantitative Methods in Business G 3

(802) W. 3 cl.  
Prereq.: 800 and an introductory course in calculus.

Application of quantitative tools to the solution of recurring business management problems such as break-even points, forecasting, capital budgeting, inventory control, and product mix. *Abramowitz, Black, Morgenroth.*

### 802 Business Research Organization and Methodology G 3

A, Sp. 3 cl.  
Prereq.: 800.  
Selection, definition, organization, development, and presentation of an individual research project. *Senior Staff.*

### 803 Administrative Principles G 3

(840) A, Sp.  
Prereq.: 620, 630, 650 or equiv.

An examination of management fundamentals underlying decision-making with respect to the utilization of basic performance factors in the accomplishment of business objectives. *Hicks, Powell.*

### 809 Business Policy G 3

(841) A, Sp. 3 cl.  
Prereq.: Admission to M.B.A. Program or 500, 620, 650, Acc. 212 or 712, Econ. 442, or equivalents, and permission of Graduate Committee.

Examination of fundamental factors in organization and management. Major policy decisions are analyzed. Effects of policy decisions on sales, production, personnel, and finances are investigated. *Senior Staff.*

### 820 Advanced Finance G 3

(803) W.  
Prereq.: 620 or equiv.

A critical study of internal financial management of business enterprises, based primarily on comprehensive case analyses. *Pfahl, Stone, Foster.*

- 822 The Security Market** G 3  
(827) A.  
A critical study of the markets for listed and unlisted securities and the factors influencing security prices. *Stone.*

- 830 Advanced Industrial Management** G 3  
(835) W.  
*Prereq.: 630 or equiv.*  
A critical survey and examination of the current trends and advanced problems in the organization and management of industrial enterprises. *Abramowitz, Kindig.*

- 832 Advanced Office Organization and Management** G 3  
(836) Sp.  
*Prereq.: 734 or equiv.*  
A critical survey and examination of current trends and advanced problems in the field of office organization and management. *Hicks*

- 840 Seminar in Life and Health Insurance** G 3  
(829) W.  
Critical consideration of current topics of significance in the field of life and health insurance through class discussions and individual research reports. *Bickelhaupt.*

- 841 Seminar in Property and Liability Insurance** G 3  
(830) Sp.  
Investigation through class discussion and reports of the current literature on significant topics in property and liability insurance. *Bickelhaupt.*

- 850 Advanced Marketing** G 3  
(813) W.  
*Prereq.: 650 or equiv.*  
A critical study of management of marketing activities in business enterprises, based primarily on comprehensive case analyses. *Davidson, J. H. Davis, Doody.*

- 852 Seminar in Specialized Areas of Marketing** G 1-3  
(818) A, W, Sp.  
*Prereq.: 650 or equiv.*  
*Repeatable.*  
Regular class meetings and group discussions of the subject matter embodied by one of the following areas in the field of marketing:  
Include decimal with number on schedule card.

- .01 Advertising. *Cullman.*
- .02 Credits and Collections. *Bartels.*
- .03 Marketing Research. *Miner.*
- .04 Retailing. *Davidson.*
- .05 Sales Management. *J. H. Davis.*
- .06 Wholesaling.
- .07 Marketing Theory. *Bartels.*

- 860 Personnel Relations** G 3  
(838) A, Sp.  
*Prereq.: 500 or equiv.*  
Analysis of interpersonal relations, personnel programs and policies, communication practices, and morale factors relative to the effect upon productivity, organizational effectiveness, and personal objectives. *Behling, Miljus.*

- 870 Seminar in Real Estate** G 3  
(749) W, 3 cl.  
*Prereq.: 670 plus one of the following: 771, 772, 773, or equiv.*

Issues and problems in the economics and administration of real estate resources critically examined through an intensive investigation of the literature. *Smith, Stone.*

- 880 Physical Distribution Management** G 3  
(812) A.  
*Prereq.: 630, 650, Econ. 442 or equiv.*  
Management of movement services and coordination of demand and supply patterns for optimization of physical systems in terms of cost and customer service.

- 889<sup>o</sup> Theory of Business Logistics** G 3  
(845) Sp.  
*Prereq.: Permission of instructor.*  
History of the development of logistics systems; an examination of commonly held hypotheses and other related evidence; discussion of contemporary problems.

- 899 Interdepartmental Seminar** G 1-5  
A, W, Sp.  
(See under *Interdepartmental Seminars.*)

- 900 General Administrative Management** G 3  
(833) A.  
*Prereq.: 500, 630 or equiv.*  
A seminar dealing with certain management problems of top executives in business organization, such as business objectives, ethics, policy, functions, and executive leadership. *Hicks, Powell.*

- 901 General Administrative Management** G 3  
(834) W.  
*Prereq.: 500, 630 or equiv.*  
Deals with such top management problems as organization, structure, staff organization, decentralization, morale, and others. *Hicks, Powell.*

- 909 History of Management Thought** G 3  
(839) Sp.  
*Prereq.: 500, 630 or equiv.*

Seminar in the historical evolution of fundamental concepts underlying the theory and practice of modern management. Pioneers in the management fields are discussed. *Hicks, Powell.*

- 920 Seminar in Finance** G 3  
(804) Sp.  
*Prereq.: 620 or equiv.*

A critical study of current practices, trends and problems in the field of finance. *Donaldson, Stone, Pfuhl.*

- 929 Industrial Consolidations and Mergers** G 3  
(825) W.  
*Prereq.: 620 or equiv.*

Historical and analytical study of industrial consolidation and mergers. *Stone.*



**930 Seminar in Industrial Management G 3**

A.

*Prereq.: 830 or equiv.*

A critical analysis of and research into emerging industrial management theories and tools with emphasis on their economic, social, and physical implications.

**931 Seminar in Industrial Management G 3**

W.

*Prereq.: 930 or equiv.*

Continuation of 930.

**950 Seminar in General Marketing G 3**

(815) A.

*Prereq.: 650 or equiv.*

A critical study of fundamental principles of marketing. Special emphasis on the historical, macro, social, and theoretical aspects of the subject. *Davidson.*

**951 Seminar in General Marketing G 3**

(816) W.

*Prereq.: 950 or equiv.*

Continuation of 950. *Davidson.*

**955 Seminar in Contemporary Marketing Problems G 3**

(817) Sp.

*Prereq.: 650 or equiv.**Repeatable.*

Review of current periodical literature and individual investigation by each student of a selected marketing problem of contemporary significance for seminar discussion and written report. *Bartels, J. H. Davis, Davidson, Miner.*

**959 History of Marketing Thought G 3**

(819) A.

*Prereq.: 650 or equiv. and permission of instructor.*

Evolution of marketing, concepts, terminology, principles, and theory. Environmental and personal influences. Analysis of marketing literature. Marketing thought related to other social sciences. *Bartels.*

**960 Seminar in Personnel Management G 3**

A.

*Prereq.: 660 or equiv.*

A consideration of personnel management in terms of its general dimensions, historical trends, objectives, functions, and relations to organization structures and needs.

**961 Seminar in Personnel Management G 3**

W.

*Prereq.: 660 or equiv.*

Management of personnel in advancing stages of business development considering theoretical and empirical analyses of concepts and practices pertaining to administrative, technical, and operative levels.

**999 Research in Business Organization G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Ceramic Engineering**

Office: 177 Watts Hall, 2041 North College Road.  
PROFESSORS †EVERHART (Chairman), BLAU (Emeritus), R. KING (Emeritus), and †RUSSELL;  
ASSISTANT PROFESSORS †B. KING and †SHOOK;  
ADJUNCT ASSISTANT PROFESSOR †ALEXANDER.

**421 Fundamentals of Ceramic Engineering U 5**

(521) A. 4 cl., 1 3-hr. lab.

Nature of the ceramic industry. Occurrence of materials, property exploration and evaluation, recovery, beneficiation, and mineral economics. Unit operations in preparation and forming processes. *Shook.*

**422 Ceramic Heat Processes U 5**

(650) W. 5 cl.

Drying processes including vaporization, moisture transport, hygrometry, and fluid flow. Firing, sintering, melting, cooling, tempering, and annealing processes. *Shook.*

**423 Fundamentals of Ceramic Materials U 3**

(640) Sp. 3 cl.

Survey of raw materials, their properties, functions, thermal behavior, and application. Introduction to the concept of glassy and crystalline states. *Russell.*

**489 Inspection Trip U 2**

(640) Sp. 6 approved plant visits.

Visits to a variety of modern ceramic operations as arranged by the department throughout the academic year.

**510 Thermodynamics of Ceramic Materials U G 3**

A. 3 cl.

*Prereq.: Chem. 553.*

Applications of thermodynamics to ceramic systems, including non-stoichiometry and interfacial relationships. *Alexander.*

**529 Ceramic Process and Product Control U 4**

(719) Sp. 4 cl.

*Prereq.: 422.*

The application of control methods for processes and products. *Everhart.*

**589 Industrial Experience U 5**

(430) A.

*Repeatable to a maximum of 10 cr. hrs.*

Ten weeks practical experience or its equiv., including written report, in approved factory manufacturing ceramic wares.

**611 Ceramic Materials Science I U G 4**

(715) A. 4 cl.

*Prereq.: Chem. 553, concur. Mineral. 605.*

Crystalline bonds, atomic structure, coordination, defect and silicate structures. Glass energy relations. Glass structure and composition related to photoelastic, optical, elastic, and mechanical properties. *Shook.*

**621 Ceramic Plant Design U G 5**

(740) Sp. 4 cl., 1 2-hr. lab.

Prereq.: 529, Eng. Mech. 420.

The concepts of ceramic plant layout with regard to processing equipment; project planning and updating techniques. *Shook*.

**631 Ceramic Technology U G 4**

(731) Sp. 2 cl., 2 3-hr. lab.

The technology of glass. *Koenig*.

**632 Ceramic Technology U G 4**

(732) W. 2 cl., 2 3-hr. lab.

The technology of porcelain enamels and surface coatings for metals. *King*.

**633 Ceramic Technology U G 4**

(733) A, Sp. 2 cl., 2 3-hr. lab.

The technology of refractories, structural clay products, and abrasives.

**634 Ceramic Technology U G 4**

(734) A. 2 cl., 2 3-hr. lab.

The technology of fine textured ceramics in the area of whitewares, electrical, technical and nuclear materials, and glaze coatings. *Russell*.

**693 Special Problems U G 1-7**

(750) A, W, Sp. Conf., library, and lab. work.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Ceramic investigations in areas of advanced non-thesis research.

**711 Ceramic Materials Science II U G 4**

(716) W. 4 cl.

Prereq.: 611.

Combinations of the glassy and crystalline states. Heterogeneous crystal systems. Interfacial conditions, internal stress states, interstate bonds, micro and macro structure. *Shook*.

**712 Advanced Ceramic Materials U G 4 Science I**

(781) A. 4 cl.

Prereq.: 711 or permission of instructor.

Materials science in the areas of crystal chemistry, colloids, surface phenomena, and rheology of plastic and solid states. Thermal and optical properties. *King*.

**713 Advanced Ceramic Materials U G 4 Science II**

(782) A. 4 cl.

Prereq.: 711.

Defect structures, diffusion, and electrical conductivity; solid state reactions, nucleation and growth in ceramic systems; ceramic microstructures.

**741 The Chemistry and Chemical U G 3 Processes of Glass Technology**

(726) W. 3 cl.

Prereq.: 611, 631.

The practical processes and equipment for producing commercial molten glasses, including the selection and handling of materials, charging, processes in the furnace, types of furnaces, furnace design, and operation. *Koenig*.

**742 The Physics and Physical U G 4 Processes of Glass Technology**

(727) Sp. 4 cl.

Prereq.: 611, 631.

The development of machine processes for forming containers, tubes, flatglass, etc. Theory and processes of annealing, heat treatment, and decoration. Emphasis on the relation of processes to properties. *Koenig*.

**785 Ceramic Research Methods U G 3**

(765) A. 1 cl., 6 lab. hrs.

Prereq.: 711.

Introduction to research experience; organization and planning; initiating specific research, designed in combination with Cer. E. 786 to give experience in individual and group research. *Shook and Staff*.

**786 Ceramic Research Methods U G 3**

(766) W. 9 lab. hrs.

Prereq.: 785.

Continuation of Cer. E. 785 with accent on the conduct of specific research problems.

**790 Ceramic Case Histories U G 3**

(775) Sp. 3 cl.

The study of selected case histories in ceramic technological and industrial problems. Designed to give experience in individual and group thinking in problem solution. *Everhart*.

**791 Ceramic Case Histories U G 3**

(776) Sp. 3 cl.

The study of selected case histories in ceramic technological and industrial problems. Designed to give experience in individual and group thinking in problem solution. *Russell*.

**851† Advanced Glass Science G 4**

(831) W. 2 cl., 2 3-hr. lab.

Prereq.: 631, Chem. 533.

The coordination of composition and physical treatment for attaining desired properties in glass. Detailed consideration is given to special glasses. *Koenig*.

**852† Physical Vitreology G 4**

(832) Sp. 4 cl.

Prereq.: 631, Chem. 533.

Advanced study of the concepts of the glassy state. Theories of random space networks, energy relations, thermal effects, phase equilibria, and X-ray diffraction studies. *Koenig*.

**853 Advanced Ceramic Physics and G 4 Chemistry**

(821) W. 4 cl.

Prereq.: Permission of instructor.

Reactions between solid phases, including sintering; the application of phase equilibria to ceramic problems. Oxide ceramics and thermodynamics. *Alexander*.

**854 Advanced Ceramic Physics and G 4 Chemistry**

(822) Sp. 4 cl.

Prereq.: Permission of instructor.

Special properties of crystals; organic chemistry, ultrasonics, and thermodynamics applied to ceramics; non-oxide ceramics. *Alexander*.



- 855 Advanced Ceramic Science** G 4  
(841) W. 4 cl. or conf.  
Prereq.: 711 or equiv.

Modern engineering materials from viewpoint of ceramic science, and solid state physics. Consideration of electrical and mechanical phenomena related to technical ceramics behavior. *Russell.*

- 856 Advanced Ceramic Science** G 4  
(842) Sp. 4 cl. or conf.  
Prereq.: 711 or equiv.

Modern engineering materials from viewpoint of ceramic science. Thermal behavior, ceramic-metal systems, sandwich and fiber composites, space material problems, plasma and vapor deposition technology. *King.*

- 889 Seminar in Ceramic Engineering** G 1-2  
(815) A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 6 cr. hrs.

Conference and reports on problems in ceramic science, technology and engineering. Topics are chosen to cover the development of the ceramic industry. *Staff.*

- 999 Research in Ceramic Engineering** G Arr.  
(850) A, W, Sp.  
Research for thesis or dissertation purposes only.

## Chemical Engineering

Office: 125 Chemical Engineering Building, 140 West 19th Avenue.

PROFESSORS †KOFFOLT (Chairman), †BRODKEY, †DRYDEN, †GEANKOPLIS, †KAY, and †SYVERSON; ASSOCIATE PROFESSORS †SHEETS, †SLIDER, and †SMITH; ASSISTANT PROFESSORS †HAERING, †SVANKS, and †SWEENEY; and LECTURERS.

- 400 Chemical Engineering and Process Calculations** U 3  
(598) A, W. 2 cl., 2 comp. lab. hrs.  
Prereq.: Physics 232, Math. 153, and Chem. 212 or permission of instructor.

The application of physico-chemical principles to problems of chemical industry. The emphasis is on graphical method, stoichiometry, heat, and material balances. *Koffolt, Geankoplis, Haering.*

- 401 Chemical Engineering and Process Calculations** U 3  
(594) W, Sp. 2 cl., 2 comp. lab. hrs.  
Prereq.: 400.  
Continuation of 400.

- 489 Chemical Engineering Practice Work** U 5  
(501) A. 10 weeks approved work experience.  
Prereq.: Chem. E. 3rd yr. standing.

The equivalent of ten weeks spent in a factory, or the engineering department of an industrial plant or organized industrial work between 3rd and 4th yr. in Chem. E. *Koffolt.*

- 520 Elements of Chemical Engineering—Transport Phenomena I** U 3  
(691) A, W. 2 cl., 2 comp. lab. hrs.  
Prereq.: 401, concur. Math. 255, Physics 232 or permission of instructor.

Introduction to momentum, mass, and heat transfer with emphasis on the analogies between the transports. Numerous computation problems illustrate applications to chemical engineering practice. *Brodkey, Smith, Sweeney.*

- 521 Elements of Chemical Engineering—Transport Phenomena II** U 3  
(692) W, Sp. 2 cl., 2 comp. lab. hrs.  
Prereq.: 520, Math. 255, Math. 412, or permission of the instructor.

Continuation of transport theory and introduction to radiation as applied to heat transfer. Basic principles will be developed and illustrated with practical problems from chemical engineering practice. *Dryden, Brodkey, Smith, Sweeney.*

- 608 Chemical Engineering Thermodynamics** U G 3  
(753) A, Sp. 2 cl., 2 comp. lab. hrs.  
Prereq.: Chem. 541 or permission of instructor.

Application of the fundamental concepts and laws of thermodynamics to problems of the chemical industry. Stress is laid on computational problem work. *Kay, Smith.*

- 609 Chemical Engineering Thermodynamics** U G 3  
(754) W. 2 cl., 2 comp. lab. hrs.  
Prereq.: 608.  
Continuation of 608.

- 610 Chemical Engineering Kinetics** U 3  
(755) Sp. 2 cl., 2 comp. lab. hrs.  
Prereq.: 609, 612, and Chem. 533.

Chemical and engineering principles for the design and operation of chemical reactors. Kinetics of simple homogeneous systems and introduction to heterogeneous catalysis. *Syverson.*

- 611 Elements of Chemical Engineering—Transport Phenomena III** U G 3  
(719) A, Sp. 2 cl., 2 comp. lab. hrs.  
Prereq.: 521, or equiv. or permission of instructor.

Continuation of the study of transport theory. Emphasis is laid on mass transfer and stagewise operations with applied computational problems. *Geankoplis, Brodkey, Smith, Sweeney.*

- 612 Chemical Engineering Operations** U G 4  
(720) W, Sp. 3 cl., 2 comp. lab. hrs.  
Prereq.: or concur.: 611, Chem. 532 or permission of instructor.

The application of the transport phenomena as fluids, heat and mass transfer to the chemical engineering operations of evaporation, distillation, drying, etc. *Koffolt, Smith.*

- 685 Inspection Trip** U 2  
(704) Sp. One week between W. and Sp. Qtrs.  
Repeatable to a maximum of 4 cr. hrs.

These trips will give some practical knowledge of the magnitude of modern chemical engineering operations from a selected variety of industry. The total cost will average about \$75. *Koffolt, Haering.*

- 693 Problems in Chemical Engineering Operations** U G 2-8  
*A. W. Sp. 1 cl., 5-25 lab. hrs.*  
*Prereq.: 521.*  
*Repeatable to a maximum of 15 cr. hrs. Not for graduate credit for students majoring in Chem. E.*  
 Individual or group conferences, library, and laboratory work dealing with fundamental chemical engineering operations. *Koffolt, Haering, Sweeney.*
- 725 Chemical Process Control** U G 3  
*(740) Sp. 2 cl., 4 lab. hrs.*  
*Prereq.: 612 or equiv. or permission of instructor.*  
 Study of the principles employed in the measurement and control of the physical and chemical variables of chemical processes and applications to control of chemical processes. *Dryden.*
- 730 Chemical Engineering Operations Laboratory** U G 4-8  
*(741) Su. 5 conf., 7-19 lab. hrs.*  
*Prereq.: 612 and 725, or permission of instructor.*  
 The fundamental laboratory course in the chemical engineering operations. Laboratory investigation of the operating characteristics and efficiency of chemical engineering equipment as distillation, drying, filtration, etc. *Koffolt, Smith, Haering.*
- 750 The Profession of Chemical Engineering** U 1  
*(777) A. 1 cl.*  
*Prereq.: Chem. E. 5th yr. standing.*  
 The code of ethics of the chemical engineer, professional registration, responsibilities to the societies of the profession, to management, to labor, and as an administrator. *Koffolt.*
- 760 Chemical Engineering Economy** U G 3  
*A. 2 cl., 2 comp. lab. hrs.*  
*Prereq.: 730 or permission of instructor.*  
 Economic consideration in research development, design, and manufacturing in the chemical process industry. Cost estimation and economic optimization of chemical engineering operations and chemical processes. *Syversen.*
- 761 Chemical Engineering Processes** U G 3  
*A. 2 cl., 2 comp. lab. hrs.*  
*Prereq.: 609, 612, concur. 610 and 760 or permission of instructor.*  
 Integration of fundamentals of chemistry, chemical engineering operations, thermodynamics, reaction kinetics, and economics for optimum design and operation of chemical process plants. *Dryden, Sweeney, Syversen.*
- 762 Chemical Engineering Process Development** U G 4  
*(770) W. 1 cl., 11 lab. hrs.*  
*Prereq.: 730, 760, 761 or equiv.*  
 Library, laboratory and pilot plant research and development on chemical processes of industrial potential justified by preliminary economic studies; preparation of optimum process flow sheets; plant design studies. *Dryden, Haering, Sweeney.*
- 763 Analysis and Organization of Special Project Problem Investigations** U 2  
*(790) W. 6 hrs. conf. and lab.*  
*Prereq.: Chem. E. 5th yr. standing.*  
 Analysis of definite problems having the theoretical and practical application to the chemical industry; individual effort guided by a chemical engineering staff member. *Syversen, Haering.*
- 764 Chemical Engineering Process Design** U G 3  
*(772) Sp. 1 cl., 2 4-hr. lab.*  
*Prereq.: 762.*  
 Based on processes developed in 762; equipment design, process control, plant location studies, economic evaluation of project. Work coordinated with Engr. Gr. 755. *Haering.*
- 770 Applied Electrochemistry** U G 3  
*(763) A. 2 cl., 4 lab. hrs.*  
*Prereq.: Chem. 533 or permission of instructor.*  
 The relationship between electrical and chemical energy as applied to chemical industries will be discussed and illustrated by laboratory work. *Syversen.*
- 771 Air Pollution** U G 3  
*Sp. 3 cl.*  
*Prereq.: 3rd professional yr. standing in Engr. or permission of instructor.*  
 Sources of air pollutants, properties of small particles, chemistry of air pollution, dispersion and disposition of air pollutants, air pollution control. *Sweeney.*
- 773 Introduction to High Polymer Engineering** U G 3  
*W. 3 cl.*  
*Prereq.: 610 and Organic Chem. or permission of instructor.*  
 Engineering of polymerization and polymer forming processes based upon thermodynamics, transport phenomena, and reaction kinetics. Relationship of engineering properties of high polymers to molecular characteristics. *Syversen.*
- 775 Rheology of Fluids** U G 3  
*Sp. 3 cl.*  
*Prereq.: 520. Permission of instructor for students not majoring in Chem. E.*  
 Principles of rheology including the characteristics of non-Newtonian materials, measurements, rheological equations of state, viscometric flows, and applications to the flow of industrial materials.
- 777 Introduction to Nuclear Chemical Engineering** U G 3  
*(765) W. 3 cl.*  
*Prereq.: Physics 472 or 571 or permission of instructor.*  
 Introductory survey of reactor engineering, reactor theory and its relation to critical design of reactors and nuclear chemical process equipment; radiation health physics and shielding. *Dryden.*



**778 Nuclear Chemical Engineering U G 4**  
(766) Sp. 3 cl., 3 hr. lab.

Prereq.: 777 or permission of instructor.

Continuation of 777 and application of chemical engineering principles to chemical problems in the nuclear field; illustrated by laboratory work with reactors and radioisotopes. *Dryden.*

**785 Special Project Problem U G 5 or 6**  
**Investigations**

(791) A, W, Sp. 15 hrs. conf. and lab.

Prereq.: 763 or permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

Solution of study problems, either new or continued from 763. Extensive theoretical and/or experimental work is followed by a comprehensive report.

**801 Advanced Special Problems G Arr.**  
**in Chemical Engineering**

A, W, Sp. Conf., library and/or lab.

Prereq.: Satisfactory courses in the field of the problem undertaken.

Repeatable to a maximum of 15 cr. hrs.

A minor problems course covering the chemical engineering operation, instrumentation, thermodynamics, kinetics, the transport fields, and chemical technology.

**808 Advanced Chemical G 3**  
**Engineering Thermodynamics**

(820) W. 3 cl.

Prereq.: 609, 612, or permission of instructor.

Detailed discussion of the thermodynamic properties of pure compounds and mixtures. Computational problem work emphasizes the application of thermodynamics in industrial problems. *Kay.*

**809 Advanced Chemical G 3**  
**Engineering Thermodynamics**

(821) Sp. 3 cl.

Prereq.: 808.

Continuation of 808.

**812 Advanced Chemical G 3**  
**Engineering Kinetics**

(830) W. 3 cl.

Prereq.: 610, 612, or permission of instructor.

Chemical engineering kinetics from the viewpoint of industrial chemical processes. *Syversen.*

**813 Advanced Chemical G 3**  
**Engineering Kinetics**

(831) Sp. 3 cl.

Prereq.: 812.

Continuation of 812. *Syversen.*

**815 Advanced Chemical G 3**  
**Engineering Science and Applications**

A, W, Sp. 3 cl.

Prereq.: Chem. Engr. grad. standing or permission of instructor.

This series of courses presents advanced concepts of science and engineering as applied to the chemical engineering field under various topics.

.01 Advanced mass transfer—I.

.02 Advanced mass transfer—II.

.03 Advanced binary and multicomponent distillation.

.04 Extraction, azeotropic and extractive distillation.

.05 Advanced heat transfer—I, conduction radiation and convection.

.06 Advanced heat transfer—II, condensation, boiling, design applications.

.07 Drying, humidification and dehumidification.

.08 Advanced momentum transfer—I, basic theory and laminar flow.

.09 Advanced momentum transfer—II, turbulence.

.10 Advanced momentum transfer—III, two phase phenomena.

.11 Advanced combustion principles.

.12 Advanced instrumentation and process control of chemical plants.

.13 Design of experiments, data handling and analysis, quality control, linear programming.

.14 Advanced process and plant design.

.15 New or unusual chemical engineering operations such as adsorption, atomolysis, dialysis exclusion, sublimation.

**830 Advanced Chemical G 2-6**  
**Engineering Operations**  
**Laboratory**

(880) A, W, Sp. 1 conf., 5-17 lab. hrs.

Prereq.: 609, 612, and/or concur. 730, or permission of instructor.

Repeatable to a maximum of 15 hrs.

Chemical engineering fundamentals and operations. *Koffolt.*

**861 Advanced Chemical G 3**  
**Engineering Processes**

A. 2 cl., 2 comp. lab. hrs.

Prereq.: 610, 612, 830; and/or 760 concur. or equiv.

Study of selected chemical engineering processes which involve the application of chemistry, thermodynamics, reaction kinetics and heat and mass transfer, oxidation, hydrogenation, polymerization, esterification, halogenation. *Dryden, Sweeney, Syversen.*

**862 Advanced Chemical G 5**  
**Engineering Process Development**

(870) W. 1 cl., 14 lab. hrs.

Prereq.: 610, 760, 830.

Original work on development of a new process. Basic data for process design and preliminary cost estimate required. *Dryden, Haering, Sweeney.*

**881 Seminar in Chemical G 2**  
**Engineering**

(905) A, W, Sp. 2 conf. hrs.

Prereq.: Graduate standing in Chem. E.

Repeatable to a maximum of 12 cr. hrs.

Formal reports, lectures, and discussions of fundamentals and new developments in science and technology as related to chemical engineering.

**999 Research in Chemical G Arr.**  
**Engineering**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Chemistry

Office: 1003 Evans Chemical Laboratory, 88 West 18th Avenue.

General Chemistry Office: 115 McPherson Chemical Laboratory, 140 West 18th Avenue.

PROFESSORS †CALVERT (Chairman), BOORD (Emeritus), BOWERMAN (Administrative Vice Chairman), †BUSCH, †CALEY, †GARRETT, †HARRIS, HASKINS (Emeritus), †HENNE, †HINE, †LIPPINCOTT, †NEWMAN (Regents Professor), †RUBIN, †SHECHTER, †SHORE, †SWEET, †TAYLOR, †VAN WINKLE, †VERHOEK (Vice Chairman), †WATTERS, and †WOLFROM (Regents Professor); ASSOCIATE PROFESSORS †FIRESTONE, †FRAENKEL, †GASSMAN, †HORTON, KURBATOV (Emeritus), †LEUSSING, †MACWOOD, †MEEK, †OUELLETTE, †PAQUETTE, †SRINIVASAN, and †WOJCICKI; ASSISTANT PROFESSORS ANDERSON, †DOUGHERTY, †GERKIN, KLAPPER, KRUBSACK, †SCHRAM, and SWENTON.

## 101 Elementary Chemistry U 5

(407) A, W, Sp. 4 cl., 3 lab. hrs.

Prereq.: Eligibility to enroll in Math 116.

Not open to students with credit for 111 or 121.

A course in the principles of chemistry; the chemistry of the more important elements and compounds, including the compounds of carbon.

## 102 Elementary Chemistry U 5

(408) A, W, Sp. 4 cl., 3 lab. hrs.

Prereq.: 101.

Not open to students with credit for 112 or 122.

Continuation of 101. A terminal sequence in chemistry for students requiring only two courses in chemistry.

## 111 General Chemistry U 4

(404) A, W. 3 cl., 3 lab. hrs.

Prereq.: Engr. 1st yr. standing. One unit of high school Chem. and eligibility to enroll in Math. 150.

Not open to students with credit for 101 or 121.

A general course in the principles of chemistry intended for students in engineering; metallic elements; applications to quantitative analysis.

## 112 General Chemistry U 4

(405) W, Sp. 3 cl., 3 lab. hrs.

Prereq.: 111.

Not open to students with credit for 102 or 122.

Continuation of 111.

## 113 General Chemistry U 4

(406) A, Sp. 2 cl., 6 lab. hrs.

Prereq.: 112.

Not open to students with credit for 102, (409), or 123.

Continuation of 112; elementary organic chemistry; non-metallic elements.

## 121 General Chemistry U 5

(411) A, W, Sp. 3 cl., 3 lab. hrs.

Prereq.: One unit of high school chem., and eligibility to enroll in Math. 150.

Not open to students with credit for 111.

A general course in fundamental chemical principles.

## 122 General Chemistry U 5

(412) A, W, Sp. 3 cl., 3 lab. hrs.

Prereq.: 121; or completion of 101 with a grade of "A" or "B" and eligibility to enroll in Math. 150.

Continuation of 121. The chemistry of the most important non-metals, and of chemical reactions in solutions.

## 123 General Chemistry U 5

(413) A, W, Sp. 3 cl., 6 lab. hrs.

Prereq.: 122.

Not open to students with credit for 112 or (409).

Continuation of 122. The chemistry of the metals including introductory quantitative analysis.

## 201 General Chemistry U 5

(511) A. 3 cl., 4 lab. hrs.

Prereq.: Superior performance on placement examination, Math. 151 or equiv.

Not open to students with credit for 111, 101, or 121.

For selected students. The principles of chemical measurement.

## 202 General Chemistry U 5

(512) W. 3 cl., 4 lab. hrs.

Prereq.: 201.

Continuation of 201. The properties of matter and quantitative analysis.

## 203 General Chemistry U 5

(513) Sp. 3 cl., 4 lab. hrs.

Prereq.: 202.

Continuation of 202. Systematic chemistry of the elements.

## 211 Quantitative Analysis U 3 or 4

(521) A, W, Sp. 2 cl., 5 to 8 lab. hrs.

Prereq.: 113, (409), or 123, or equiv.

Not open to students with credit for (421).

A general course in quantitative analysis; gravimetric, volumetric and instrumental analysis.

## 212 Quantitative Analysis U 3 or 4

(522) W, Sp. 2 cl., 5 to 8 lab. hrs.

Prereq.: 211.

Not open to students with credit for (422).

Continuation of 211.

## 213 Quantitative Analysis U 3 or 4

(523) Sp. 3 cl., 5 to 8 lab. hrs.

Prereq.: 212.

Not open to students with credit for (423).

Continuation of 212. Instrumental methods of analysis.

## 221 Quantitative Analysis U 5

(531) A. 3 cl., 6 lab. hrs.

Prereq.: 123 or equiv.

Not open to students with credit for (431).

The fundamental course in quantitative chemical analysis for students majoring in chemistry.

## 231 Organic Chemistry U 5

(531) A, Sp. 3 cl., 6 lab. hrs.

Prereq.: 113, (409), or 123, or equiv.

Not open to students with credit for (451).



A general introductory course in organic chemistry, including laboratory preparations, arranged for students preparing for dentistry, optometry, veterinary medicine, medical technology, and pharmacy.

**232 Organic Chemistry U 5**  
(552) W. 3 cl., 6 lab. hrs.

Prereq.: 231.

Not open to students with credit for (452).

Continuation of 231.

**241 Organic Chemistry U 3**  
(647) A, Sp. 3 cl.

Prereq.: 123 or (409).

Not open to students with credit for (451) or 231.

A fundamental course in organic chemistry designed for students preparing for medicine or high school teaching.

**242 Organic Chemistry U 3**  
(648) W. 3 cl.

Prereq.: 241.

Not open to students with credit for (452) or 232.

Continuation of 241.

**243 Organic Chemistry Laboratory U 3**  
(649) A, Sp. 9 lab hrs.

Prereq. or concur.: 241.

Not open to students with credit for (451) or 231.

A preparation of a series of typical organic compounds, such as are studied in 241-242, their purification and a study of their properties.

**244 Organic Chemistry Laboratory U 3**  
(650) W. 9 lab. hrs.

Prereq.: 243.

Not open to students with credit for (452) or 232.

Continuation of 243.

**251 Organic Chemistry U 3**  
(655) A. 3 cl.

Prereq.: 123 or (409).

Not open to students with credit for (451), 231 or 241.

A fundamental course in chemistry designed for Chem. majors and chemical engineers.

**252 Organic Chemistry U 3**  
(657) W. 3 cl.

Prereq.: 251.

Not open to students with credit for (452), 232 or 242.

Continuation of 251.

**253 Organic Chemistry U 3**  
(659) Sp. 3 cl.

Prereq.: 252.

Continuation of 252.

**254 Organic Chemistry Laboratory U 3**  
(656) A. 6 or 9 hrs. lab.

Prereq. or concur.: 251.

Not open to students with credit for (451-452) or 243-244.

The preparation, purification, characterization, and study of the properties of typical organic compounds.

**255 Organic Chemistry Laboratory U 3**  
(658) W. 6 or 9 hrs. lab.

Prereq.: 254 or concur. 252.

Not open to students with credit for (451-452).

Continuation of 254.

**501 Recent Advances in Chemistry U G 5**  
(630) A. 5 cl.

Prereq.: Academic Year Science Institute students only. 30 cr. hrs. of Chem.

Not for graduate credit to students majoring in Chem.

A course designed for high school science teachers. Recent developments in the theory of valence, particle nature of matter, colloids, high polymers, nuclear chemistry, fuels and photosynthesis.

**502 Radiochemistry U G 3**  
(631) Su. Summer Institute only. 4 cl. each week.

Prereq.: Academic Year Science Institute students only. 1 year college Math., 1 year college Chem., 1 year college Physics.

Not for credit to students majoring in Chem.

The properties of the nucleus, selection and preparation of isotopes for tracer work, the application of radioactive isotopes to chemical problems.

**511 Principles of Instrumental Analysis U G 5**

Sp. 3 cl., 6 lab. hrs.

Prereq.: 532, 552.

Application of physical-chemical principles to problems of chemical analysis. Laboratory practice in basic instrumental techniques.

**521 Physical Chemistry U G 5**  
(670) Sp. 5 cl.

Prereq.: 242-244 or 252-255, or equiv., Math 151, and Physics 113.

Not for graduate credit to students majoring in Chem.

A study of the fundamental principles of physical chemistry arranged for students in the biological sciences.

**531 Physical Chemistry U G 3**  
(681) A. 3 cl.

Prereq.: 213 or 221 or equiv., Physics 113 or 252, 253 and Math. 254; prereq. or concur. Math. 255.

Not for graduate credit to students majoring in Chem.

The fundamental course in physical chem.

**532 Physical Chemistry U G 3**  
(682) W. 3 cl.

Prereq.: 531-552 concur. recommended.

Not for graduate credit to students majoring in Chem.

Continuation of 531.

**533 Physical Chemistry U G 3**  
(683) Sp. 3 cl.

Prereq.: 532.

Not for graduate credit to students majoring in Chem.

Continuation of 532.

**541 Physical Chemistry Laboratory U G 3**

(690) A, Sp. 1 cl., 8 lab. hrs.

Prereq. or concur.: Chem. E. 3rd yr. standing, 521 or 533 or equiv.

**551 Physical Chemistry Laboratory U G 2**

(691) A, W, Sp. 6 lab. hrs.

Prereq. or concur.: 531.

Quantitative measurements of phenomena of chemical interest and the application of chemical principles to their interpretation.

**552 Physical Chemistry Laboratory U G 2**

(692) A, W, Sp. 6 lab. hrs.

Prereq.: 551; prereq. or concur. 532.

Continuation of 551.

**587 Principles of Instrumental Analysis U G 5**

Sp. 3 cl., 6 lab. hrs.

Prereq.: 532, 532, and prereq. or concur. 533.

Application of physical-chemical principles to problems of chemical analysis. Laboratory practice in basic instrumental techniques.

**601 Chemical Information Science U G 1**

(782) A. 1 cl.

Prereq.: 213 or (533), (452), 242 or 255, or equiv.

Chemical library usage for information retrieval and introduction to modern methods of chemical information handling.

**602 History of Chemistry U G 2**

(784) W. 2 cl.

Prereq.: 213 or (533), (452), 242 or 255, or equiv.

A general course in the history of chemistry with special reference to the development of the theories of the science.

**611 Advanced Analytical Chemistry U G 3**

(721) A. 3 cl.

Prereq.: 531 or concur.

The principal topics are standards, sampling, special gravimetric methods, new titration methods, and separations, with special reference to the exact analysis of complex inorganic materials.

**612 Advanced Instrumental Analysis U G 4**

(722) W. 2 cl., 6 lab. hrs.

Prereq.: 531 or concur.

Potentiometric evaluation of equilibrium constants in complex ion systems. Application and use of digital computers in solving equilibrium problems.

**613 Advanced Instrumental Analysis U G 4**

(723) A. 2 cl., 6 lab. hrs.

Prereq.: 531 or concur.

A survey of the chemical and physical principles upon which modern instrumental analysis is based. Lectures, demonstrations, and laboratory work.

**615 Inorganic Micro Analysis U G 4**

(726) Sp. 2 cl., 6 lab. hrs.

Prereq.: 213 or (533), 533 or equiv.

Application of micro and microscopic methods to common chemical problems.

**616 Organic Micro Quantitative Analysis U G 4**

(742) Sp. 1 cl., 9 lab. hrs.

Prereq.: 213 or (433), 242-244, or 252-255, or equiv.

Quantitative organic analysis using micro methods. The common determinations of organic quantitative analysis are studied.

**621 Chemical Spectrophotometry U G 4**

(729) W. 2 cl., 6 lab. hrs.

Prereq.: Physics 112 or equiv.

Application of infrared, visible and ultraviolet spectrophotometers to problems involving inorganic and organic molecular structure, analysis, equilibria, and reaction rates.

**622 Spectroscopic Analysis U G 4**

(728) Sp. 2 cl., 6 lab. hrs.

Prereq.: Physics 112 or equiv.

Application of the emission spectrophotograph to qualitative and quantitative analysis for the elements in metallurgical and biological materials.

**631 Structure Determination and Identification of Organic Compounds U G 3**

A. 1 hr. lec., 9 hrs. lab.

Prereq.: 253 or equiv.

Application of chemical and physical methods in structure determination of organic compounds.

**632 Physical Methods in Organic Chemistry U G 3**

(757) Sp. 3 cl.

Prereq.: 253 and 533 or equiv.

Selected topics in bonding, molecular orientation and reactivity of organic compounds and metastable intermediates with emphasis on physical methods of approach.

**635\* Chemistry of the Carbohydrates U G 3**

(794) A. 3 cl.

Prereq.: 242 or 252 or equiv.

Repeatable to a maximum of 6 cr. hrs., with instructor's permission.

Monosaccharides (A); oligosaccharides and polysaccharides (B); A is given in even-numbered years and B in odd-numbered years.

**651 Advanced Inorganic Chemistry I U G 3**

(761) A. 3 cl.

Prereq.: 533 or permission of instructor.

An introduction to the concepts and chemical systems of inorganic chemistry, including atomic structure, the periodic table, molecular structure and bonding, ionic crystals, defect solid state and electron deficient compounds.

**652 Advanced Inorganic Chemistry II U G 3**

(762) W. 3 cl.

Prereq.: 651.

The chemistry of the transition elements; co-ordination compounds, organometallics, noble gases, representative elements and lower boron hydrides; acid-base theories.



**653 Advanced Inorganic Chemistry III U G 3**

(763) Sp. 3 cl.

Prereq.: 652.

A discussion of special topics in modern inorganic chemistry, correlating the group relationships among the non-metallic elements, polyhedral anions and carborane structures.

**655 Inorganic Chemistry Laboratory U G 3**

(772) Sp. 9 lab. hrs.

Prereq.: 533 or equiv.

Preparative techniques of inorganic chemistry including the use of liquified gases, aqueous and non-aqueous solutions, anhydrous and oxygen-free systems, fusion reactions, etc.

**671 Nuclear, Radio, and Radiation Chemistry U G 3**

(751) A. 3 cl.

Prereq.: 533 or equiv.

Nuclear properties, nature of radioactivity, radioactive decay and growth, interactions of radiation with matter, applications.

**672 Nuclear Chemistry Laboratory U G 2**

(753) W. 6 lab. hrs.

Prereq.: 671.

Techniques of handling radioactive tracers, the detection and measurement of different types of radiation, neutron activations, and other related laboratory techniques.

**675 X-rays and Crystal Structure U G 4**

(754) A. 3 cl., 3 lab. hrs.

Prereq.: Math. 255, Physics 113 or 232, 233, or equiv.

An introduction to the methods of X-ray crystal analysis. Theory of symmetry of crystals and of diffraction will be discussed and applied.

**676 Colloid Chemistry U G 3**

(795) W. 3 cl.

Prereq.: 533.

Modern theories of colloidal behavior. Adsorption and surface phenomena. Physical-chemical methods for the characterization of proteins, high polymers, and inorganic colloids.

**693 Individual Studies in Chemistry U G 1-15**

(701) A, W, Sp. Conf., library, and lab.

Prereq.: Satisfactory courses in field of the problem and permission of instructor.

Repeatable.

A qualified student may conduct a minor investigation in Chemistry.

**733 Chemistry of Organic Catalysis U G 3**

(760) Sp. 3 cl.

Prereq.: 253 or 831 concur.; 533; 651 or equiv. Not open to students with credit for (860).

Structure of organic catalysts and the mechanism of their reactions.

**831 Advanced Organic Chemistry G 3**

(841) A. 3 cl.

831-832-833 to be taken in sequence.

An advanced course in the fundamental principles of chemistry covering the aliphatic hydrocarbons and their derivatives.

**832 Advanced Organic Chemistry G 3**

(842) W. 3 cl.

Prereq.: 831.

An advanced course in the fundamental principles of chemistry covering alicyclic, hydroaromatic and aromatic compounds.

**833 Advanced Organic Chemistry G 3**

(843) Sp. 3 cl.

Prereq.: 832.

An advanced course in the fundamental principles of chemistry covering a survey of heterocyclic compounds, carbohydrates, proteins and enzymes.

**835 Advanced Organic Chemistry Laboratory G 3**

(844) W. 9 lab. hrs.

Prereq. or concur.: 831 and 832.

An advanced course in fundamental reactions and procedures with emphasis on recent advances in technique.

**836 Advanced Organic Chemistry Laboratory G 3**

(845) Sp. 9 lab. hrs.

Prereq.: 835.

Continuation of 835.

**851 Advanced Inorganic Chemistry G 3**

(868) A. 3 cl.

Prereq.: 533, 652, or permission of instructor.

A survey of modern theories of valence and their application to the problems of structural inorganic chemistry.

**852 Advanced Inorganic Chemistry G 3**

(869) W. 3 cl.

Prereq.: 851.

A detailed treatment of the chemistry of the transition elements from the standpoint of molecular and atomic structure, electronic spectra, magnetism and ligand-field theory.

**855 Advanced Inorganic Chemistry Laboratory G 3**

(773) Su. 1 cl., 8 lab. hrs.

Prereq.: 551; 552; and (693) or equiv.; 651 or permission of instructor.

Advanced methods for the synthesis, purification, identification and characterization of inorganic substances.

**871 Research Instrumentation G 3**

(803) Sp. 9 lab. hrs.

Prereq.: 533; Physics 232, 233, Math. 255 or equiv.

Background theory and laboratory applications in the use of electrical and electronic instruments in chemical research.

**872 High Polymers G 3**

(839) Sp.

Prereq.: 533.

A course in the physical chemistry of macromolecules and their solutions, including the kinetics of polymerization reactions.

- 873 X-rays and Electron Diffraction** G 3  
(864) W. 3 cl.  
Prereq.: 875.  
An advanced consideration of the theory of X-rays and electron diffractions and their applications including Fourier methods of parameter determination in crystals, etc.
- 875 Chemical Kinetics I** G 3  
(881) A. 3 cl.  
Prereq.: 533.  
Fundamentals of chemical kinetics in homogeneous liquid and gaseous systems.
- 876 Chemical Kinetics II** G 3  
(882) W. 3 cl.  
Prereq.: 875.  
Continuation of 875. Elementary reactions; chain reactions; fast reaction methods; reaction rates in heterogeneous systems.
- 877 Radiation and Photochemical Kinetics** G 3  
Sp. 3 cl.  
Prereq.: 875.  
The physical and chemical effects of the absorption of radiant energy, with emphasis on kinetics and mechanism.
- 881 Thermodynamics** G 3  
(887) W. 3 cl.  
Prereq.: 875 or equiv.  
Introduction to thermodynamics. The main objective is training in the use of thermodynamics as a tool for solving chemical problems.
- 882 Statistical Thermodynamics** G 3  
(888) Sp. 3 cl.  
Prereq.: 881.  
An introduction to statistical thermodynamics, including quantum statistics, entropy and the third law, statistical-spectroscopic calculation of thermodynamic functions of gases, chemical equilibria and vapor pressure.
- 885 Colloquium in Chemistry** G 1  
(910) A, W, Sp. 1 cl.  
Prereq.: Graduate standing in Chem. Required every qtr. of all registered graduate students in Chem.  
A discussion of current research in Chemistry. All divisions.
- 941 Theoretical Organic Chemistry** G 3  
(847) A. 3 cl.  
Prereq.: 2nd. yr. grad. standing, 831-832.  
941-942-943: a sequence of courses in advanced theoretical Organic Chemistry.
- 942 Theoretical Organic Chemistry** G 3  
(848) W. 3 cl.  
Prereq.: 941.  
Continuation of 941.
- 943 Theoretical Organic Chemistry** G 3  
(849) Sp. 3 cl.  
Prereq.: 942.  
Continuation of 942.
- 970 Advanced Thermodynamics** G 3  
(889) A. 3 cl.  
Prereq.: 882.  
Continuation of 881 and 882.
- 971 Quantum Chemistry I** G 3  
(861) A. 3 cl.  
Prereq.: 533, Physics 113 or 232, 233; prereq. or concur. Math. 255 or 556, or equiv.  
Basic quantum mechanics as a foundation for quantum chemistry: postulates, operators, eigenfunctions, eigenvalues and Schrodinger wave equations; one-dimensional problems including the harmonic oscillator.
- 972 Quantum Chemistry II** G 3  
(862) W. 3 cl.  
Prereq.: 971 or equiv.  
Angular momentum; matrix elements and representations; the hydrogenic atom; perturbation and variation methods, electron spin, and the helium atom; atomic structure and multiplet theory.
- 973 Quantum Chemistry III** G 3  
(863) Sp. 3 cl.  
Prereq.: 972.  
Electronic structure of molecules: hydrogen molecule and ion, methane, ethylene, benzene, etc.; molecular orbital, valence bond, and self-consistent field methods.
- 981 Electronic Structure and Spectra of Molecules** G 3  
(885) W. 3 cl.  
Prereq.: 973 or equiv.  
An extension of molecular orbital and valence bond theory to larger molecules than those considered in Chemistry 973.
- 991 Seminar in Analytical Chemistry** G 3  
(824) A. 3 cl.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.  
Topic to be announced.
- 992 Seminar in Organic Chemistry** G 3  
(850) A, W, Sp. 3 cl.  
Prereq.: Chem. 2nd yr. grad. standing and 831, 832 or equiv. and permission of instructor.  
Repeatable to a maximum of 12 cr. hrs.  
Topic to be announced.
- 995 Seminar in Inorganic Chemistry** G 2 or 3  
(867) A. 2 cl.  
Prereq.: 651 and 652 or equiv. and permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.  
Topic to be announced.
- 997 Seminar in Physical Chemistry** G 3  
(891) A, W, Sp. 3 cl.  
Prereq.: At least a 2nd yr. grad. standing in Physical Chem.  
Repeatable to a maximum of 9 cr. hrs. with permission of instructor.  
Topic to be announced.
- 999 Research in Chemistry** G Arr.  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.



## Chinese

Office: 200E University Hall, 216 North Oval Drive.  
ASSOCIATE PROFESSOR CHING (Chairman); LECTURERS CHING and LEE; INSTRUCTOR LYELL.

**101 Elementary Chinese** U 5  
(401) A. 5 cl.

**102 Elementary Chinese** U 5  
(402) W. 5 cl.  
Prereq.: 101.

**103 Intermediate Chinese** U 5  
(403) Sp. 5 cl.  
Prereq.: 102.

**104 Intermediate Chinese** U 5  
(404) A. 5 cl.  
Prereq.: 103.

**251 Chinese Literature in English Translation** U 3  
(551) A. 3 cl.

Introduction to the great literary works of the past several hundred years. These include *All Men Are Brothers*, *The Dream of the Red Chamber*, *Monkey*, *Romance of the Three Kingdoms*. Lyell.

**271 Elements of Chinese Thought** U 3  
(571) W. 3 cl.

A survey of the major philosophical trends that have prevailed in China. Discussion of Confucianism and Taoism in their various forms. Lyell.

**405 Chinese Conversation** U 3  
(505) W. 3 cl.  
Prereq.: 104 or permission of instructor.

Practice in conversation on timely topics of the day. Lee.

**406 Chinese Composition** U 3  
(506) Sp. 3 cl.  
Prereq.: 104 or permission of instructor.

Practice in composing simple writings. Review of vocabulary and grammar. Lee.

**417† Study Tour of Taiwan** U 15  
(517) Su. 15 cl., two weeks at OSU; 8 weeks in Taiwan.

Prereq.: 25 cr. hrs. of Chin. or permission of instructor.

Advanced work in conversation and reading in order to prepare for the tour. In Taiwan only Chinese will be spoken. Some formal instruction will be given daily by the tour leaders.

**609 Advanced Reading, Conversation, and Composition I** U G 3  
A. 3 cl.  
Prereq.: 405 and 406 or permission of instructor.

Reading of contemporary prose and verse, presentation of oral and written reports, drill in tone and intonation, practice in translation. Lee.

**610 Advanced Reading, Conversation, and Composition II** U G 3  
W. 3 cl.

Prereq.: 609 or permission of instructor.

Continuation of 609. Lee.

**611 Advanced Reading, Conversation, and Composition III** U G 3  
Sp. 3 cl.  
Prereq.: 610 or permission of instructor.

Continuation of 610. Lee.

**624 Chinese Phonetics** U G 5  
A. 3 cl.  
Prereq.: 101, Ling. 601 or permission of instructor.

A detailed analysis of the sound structure of Chinese dialects, especially Mandarin, and its relation to the sound structure of English. Ching.

**626 The Structure of the Chinese Language** U G 5  
W. 3 cl.  
Prereq.: 101, Ling. 601 or permission of instructor.

An investigation of the syntactic and phonological structure of Mandarin. Ching.

**627 The History of the Chinese Language** U G 3  
Sp. 3 cl.  
Prereq.: 626 or permission of instructor.

An investigation of the relations between modern Chinese and its earlier stages, ancient and archaic Chinese. Ching.

**651 Literary Chinese I** U G 3  
(652) A. 3 cl.  
Prereq.: 104 or permission of instructor.

Selected reading from representative authors of classical times.

**652 Literary Chinese II** U G 3  
W. 3 cl.  
Prereq.: 651 or permission of instructor.

**653 Literary Chinese III** U G 3  
Sp. 3 cl.  
Prereq.: 652 or permission of instructor.

**661 Modern Chinese Literature** U G 3  
(661) W. 3 cl.  
Prereq.: 104.

A survey of Chinese literature of the past half-century. Reading in influential authors such as Lu Syun, Ba Jin, and others. Lyell.

**671 History of Chinese Thought** U G 3  
Sp. 3 cl.  
Prereq.: 271 or permission of instructor.

Detailed examination of the major Chinese philosophies. Readings from selected Chinese texts. Lyell.

**693 Individual Studies in Chinese** U G 2-5  
(695) A, W, Sp.  
Prereq.: Permission of department.  
Repeatable to a maximum of 10 cr. hrs.

## City and Regional Planning

Office: 107 Brown Hall, 190 West 17th Avenue.

PROFESSOR †STOLLMAN; ASSOCIATE PROFESSOR †GERCKENS; ASSISTANT PROFESSOR †MILLS, and LECTURERS.

### 300 Outlines of City Planning U 3

Sp. 3 cl.

Prereq.: 4th yr. standing or permission of instructor.

Not open to students with credit for Arch. (709).

Analysis of city planning practices and principles; examination of representative problems in contemporary urban development and proposed solutions. *Stollman.*

### 731 Outlines of Urban Design U G 3

(791) A. 2 cl., 3 lab. hrs.

Prereq.: Graduate standing in City and Reg. Plan., or senior standing in Arch., or permission of instructor.

Elements and criteria of urban design; comparative evaluation of urban design work. *Gerckens.*

### 742 History of City Planning U G 3

to 1900

W. 3 cl.

Prereq.: Senior standing or permission of instructor.

History of city planning from the earliest discovered settlements to the beginnings of contemporary planning. *Gerckens.*

### 794 Special Studies in City and Regional Planning U G 1-5

(799) A, W, Sp.

Prereq.: Permission of instructor

- .01 City and Regional Planning History
- .02 Planning Theory
- .03 Regional Planning
- .04 Urban Design
- .05 Planning Analysis
- .06 Housing
- .07 Circulation
- .08 Open-space and Recreation
- .09 Community Facilities
- .10 Land-use Renewal
- .11 Urban Renewal
- .12 Unclassified

### 811 Recent History of City and Regional Planning G 3

(721) W. 3 cl.

Prereq.: Graduate standing in City and Reg. Plan.

Development of City and Regional Planning since 1890: evolution of planning concepts and methods in response to urbanization and resource development; emphasis on American work. *Stollman.*

### 812 Theory of City and Regional Planning G 3

(722) A. 3 cl.

Prereq.: Graduate standing in City and Reg. Plan.

Planning processes; the general plan; formulating goals; land development policies and decisions; alternative urban and regional forms; role and scope of planning. *Stollman.*

### 813 Outlines of Regional Planning G 3

(793) Sp. 3 cl.

Prereq.: Graduate standing in City and Reg. Plan. or in a Conserv. program.

State, national and regional planning; components of regional development; regional analysis and design. *Stollman.*

### 832 City and Regional Planning Analysis G 5

(762) W. 3 cl., 6 lab. hrs.

Concur.: 842.

Techniques of research and analysis in planning: land-use, employment, population, housing market, transportation studies. *Mills.*

### 833 City and Regional Planning Analysis G 3

(763) Sp. 2 cl., 3 lab. hrs.

Prereq.: 832; concur. 843.

Continuation of 832. Use of forecasts, analytic models; cost-benefit analysis and other tests of planning solutions. *Mills.*

### 841 Introduction to Planning Design G 3

(751) A. 2 cl., 3 lab. hrs.

Prereq.: Graduate standing in City and Reg. Plan.

Principles and practices of environmental design applied to problems of urban scale; graphic presentation of planning information. *Gerckens.*

### 842 Elements of City Planning Practice G 3

(752) W. 1 cl., 6 lab. hrs.

Prereq.: 841; concur. 832.

Physical components of urban areas; residential, commercial, industrial, pedestrian and vehicular circulation, other community facilities; analysis of design criteria and standards. *Gerckens.*

### 843 Elements of City Planning Practice G 5

(753) Sp. 3 cl., 6 lab. hrs.

Prereq.: 832, 842; concur. 833.

Continuation of 842. *Gerckens.*

### 851 Planning Design G 5

(801) A. 15 lab. hrs.

Prereq.: 833, 843.

Preparation of general urban plans. *Gerckens.*

### 852 Planning Design G 5

(802) W. 15 lab. hrs.

Prereq.: 851.

Continuation of 851. *Gerckens.*

### 853 Planning Design G 5

(803) Sp. 15 lab. hrs.

Prereq.: 852.

Continuation of 852. *Gerckens.*

### 861 Land-Use Controls G 4

(821) A. 3 cl.

Prereq.: Graduate standing in City and Reg. Plan.

Legal basis of land-use controls in the United States, provisions, procedures and issues in zoning, subdivision regulation, urban renewal, building and housing codes, acquisition of real property for public use. *Stollman.*



**862 City and Regional Planning Administration G 3**

(822) W. 3 cl.

*Prereq.: Graduate standing in City and Reg. Plan.*Administration of official planning agencies; professional practice; capital improvement programming. *Stollman.***899 Interdepartmental Seminar A, W, Sp. G 1-5***(See under Interdepartmental Seminars.)***999 Research in City and Regional Planning G Arr.**

(950) A, W, Sp.

Research for thesis purposes only.

**Civil Engineering***Office: 228 Civil and Aeronautical Engineering Building, 2036 Neil Avenue.*

PROFESSORS †GRAY (Chairman), †KARRER, LARGE (Emeritus), †OJALVO, PRIOR (Emeritus), †SCHWAR, †SMITH, VANDEGRIFT (Emeritus), and †WU; VISITING PROFESSOR MASSEY; ASSOCIATE PROFESSORS †BISHARA, †BLETZACKER, †CHEN, †COFFMAN, †COSENS, †HANNA, †MAJIDZADEH, †MINTZER, MONTZ (Emeritus), †PURTZ, and †TREITERER; ASSISTANT PROFESSORS HOOPER, PAGEN, RICCA, and †SHUMATE; and INSTRUCTORS.

**201 Elementary Surveying U 5**

(412) Sp. 3 cl. 2 3-hr. lab.

*Prereq.: Math. 150.*Use and adjustment of instruments, land surveying, leveling, profiles, use of plane table, mapping, and computations. *Purtz.***401 Surveying I U 5**

(502) A, W. 3 cl., 2 3-hr. lab.

*Prereq.: Physics 231.*Theory and practice of measurements. Orientation by celestial observations. *Purtz.***402 Photogrammetry U 4**

(504) W. 3 cl., 1 3-hr. lab.

*Prereq.: 401.*Fundamental geometry and photogrammetric applications to engineering. *Mintzer.***403 Surveying II U 5**

(506) Sp. 3 cl., 2 3-hr. lab.

*Prereq.: 401, Engr. Mech. 200.*Topographic mapping, curves, and earthwork. *Purtz.***404 City Surveying U 3**

(650) Sp. 2 cl., 1 3-hr. lab.

*Prereq.: Geod. Sc. (640).**Not open to students with credit in Geod. Sc. (650).*

City control surveys, coordinates of lot and block corners. Measurement of details, computation of areas. Setting out city plans.

**410 Public Health Engineering U 3**

(620) W. 3 cl.

*Prereq.: Chem. 113 or equiv., concur. Microbiol. 607 or equiv.*A study of the human environment from a health engineering point of view, with emphasis on those facets of the health picture that are controllable by engineering developments. *Cosens, Shumate.***430 Structural Analysis I U 4**

(604) W. 4 cl.

*Prereq.: Engr. Mech. 210.*Stresses in statically determinate frames and trusses. Influence lines, moving loads, space frames. *Smith, Ojalvo, Chen.***510 Principles of Hydraulics U G 3**

(616) W. 3 cl.

*Prereq.: Math. 151, Physics 111 or 231. Not open to students majoring in Civil E.*Basic fluid dynamic concepts with special application to flow through porous media, stream flow measurements, solids transport, and ocean hydrodynamics. *Ricca.***511 Fluid Mechanics U 3**

(611) Sp. 3 cl.

*Prereq.: Engr. Mech. 410.*Fluid properties; fluid statics; viscous and turbulent fluid flow; dimensional analysis and similitude. *Ricca.***512 Applied Hydraulics U G 3**

(728) A. 3 cl.

*Prereq.: 511 or Engr. Mech. (610).**Not for graduate credit to students majoring in Civil E.*Civil engineering applications of fundamental fluid mechanics principles including pipe and open channel flow, masonry and earth dams, and pumps, with laboratory studies to support the above topics. *Cosens, Ricca.***530 Elementary Structural Engineering U G 3**

(711) W. 3 cl.

*Prereq.: Engr. Mech. 420.**Not open to students majoring in Civil E.*Design of simple steel structures. Introduction to reinforced concrete. *Purtz.***531 Structural Analysis II U G 4**

(741) Sp. 4 cl.

*Prereq.: 430 or 530, Engr. Mech. 420.**Not for graduate credit to students majoring in Civil E.*Deflection in trusses, beams and frames. Solution of indeterminate structures by methods of consistent deformations, and moment distribution. *Ojalvo, Chen, Smith.***551 Soil Mechanics I U 4**

(622) Sp. 3 cl., 1 3-hr. lab.

*Prereq. or concur.: Engr. Mech. 420.*Basic and engineering soil properties; fluid flow through soils; compaction, effective stresses and compression. *Coffman, Hooper, Wu.***552 Civil Engineering Materials U 4**

(623) A. 3 cl., 1 3-hr. lab.

*Prereq.: 551.*Composition, properties, and production of portland cement concrete, bituminous materials and bituminous mixtures. *Majidzadeh, Pagen.*

- 570 Transportation Planning** U G 5  
(710) A. 3 cl., 2-hr. seminar.  
Prereq.: Permission of instructor.  
Not for credit to students in Civil E.

An analysis of engineering factors affecting location, geometric design, operation, maintenance and management of coordinated transportation systems. *Karrer.*

- 571 Transportation I** U 4  
(624) A. 3 cl., 1 2-hr. lab.  
Prereq.: 403.

A study of the development, location, geometric design, economics, finances, and operation of transportation systems. *Karrer, Treiterer.*

- 581 Principles of Rock Mechanics** U 4  
(661) Sp. 4 cl.  
Prereq.: 552, Geol. 100.

Fundamental rock properties and the evaluation and design of competent underground openings; drilling and blasting theories, explosives, and their application. *Verner.*

- 582 Mining Systems Engineering** U 3  
(662) A. 3 cl.  
Prereq.: 552, Geol. 100.

Fundamentals of mining systems for bedded, massive, vein, and surface deposits. *Verner.*

- 589 Inspection Trip** U 2  
(669) Sp.  
Prereq.: Permission of instructor.

A trip to coal, metallic, and non-metallic mines plus mineral processing and preparation plants; a written report is required. *Verner.*

- 601 Observational Analysis** U G 3  
(609) W. 2 cl., 2 2-hr. lab.  
Prereq.: 401, Math. 254.

Theory and applications of observational analysis. *Pnrtz.*

- 611 Principles of Sanitary Engineering I** U G 5  
(703) W. 5 cl.  
Prereq.: 512.  
Not for graduate credit to students majoring in Civil E.

Basic principles of water resources including hydrology; reservoirs; design of transmission, distribution, and collection systems; supply and demand rates; statistical methods; construction materials and methods. *Cosens.*

- 612 Principles of Sanitary Engineering II** U G 5  
(716) Sp. 5 cl.  
Prereq.: 512, 611.  
Not for graduate credit to students majoring in Civil E.

Unit operation in water supply and waste water recovery including selection, treatment methods and equipment, and water quality criteria. *Cosens.*

- 613 Applied Hydrology** U G 3  
(742) W. 3 cl.  
Prereq.: 512 or equiv.

Basic principles of the hydrologic cycle; precipitation, hydrographs, unit graphs, drainage basin characteristics, infiltration, ground water hydraulics, run-off, flood and drought magnitude and probability, flood routing. *Cosens, Ricca.*

- 631 Structural Design I** U 5  
(714) A. 3 cl. 2 2-hr. lab.  
Prereq.: 531.  
Not open to students with credit for (613).

Elastic design of simple steel structures, introduction to plastic design of continuous beams and simple bents. *Smith.*

- 632 Structural Design II** U G 5  
(701) W, Sp. 3 cl., 2 2-hr. lab.  
Prereq.: 531, 552, Engr. Mech. 521.  
Not for graduate credit to students majoring in Civil E.

Basic theory and design of reinforced concrete structures. *Chen, Bishara.*

- 651 Soil Mechanics II** U G 4  
(725) W. 3 cl., 1-3 hr. lab.  
Prereq.: 551.  
Not for graduate credit to students majoring in Civil E.

Stress distribution; shear phenomena, lateral earth pressure, settlement, soil stability. *Coffman, Hooper, Wu.*

- 652 Mechanical Properties of Engineering Materials** U G 4  
(750) W. 4 cl.  
Prereq.: 552, Engr. Mech. 521, Met. E. 400 or permission of instructor.

Structure of liquids and solids, elasticity, plasticity and flow, viscosity, viscoelasticity and surface phenomena. *Majidzadeh.*

- 671 Transportation II** U 3  
(724) W. 3 cl.  
Prereq.: 552, 571.

Design, construction and maintenance of embankments, drainage structures, and pavements for highways and airports. *Karrer, Treiterer.*

- 672 Fundamentals in Traffic Engineering** U G 3  
(722) A. 2 cl., 1 3-hr. lab.  
Prereq.: 571.

An introduction to traffic characteristics, measurements, controls and regulation. Elements in traffic operation, design and planning. *Schwar, Treiterer.*

- 673 Highway Location and Design** U G 3  
(738) W. 2 cl., 1 3-hr. lab.  
Prereq.: 571.

Geometric design of roads and streets. Determination of alignment, grade, intersections, and traffic capacity of rural roads. *Karrer, Treiterer.*

- 680 Mine Valuation and Mineral Economics** U 3  
W. 3 cl.  
Prereq.: 552, Econ. (508) or equiv.

Theories of mineral sampling, calculation of ore reserves, present and future worth of mineral properties, and mineral property examination; economic case studies of major minerals. *Verner.*

- 681 Mining Plant Engineering I** U G 3  
(761) A. 3 cl.  
Prereq.: 512, concur. 582.  
Not for graduate credit to students majoring in Civil E.



Principles of underground ventilation and compressed air systems and their application to mining problems. *Verner.*

**682 Mining Plant Engineering II U G 3**  
(762) W. 3 cl.

Prereq.: 582, Engr. Mech. 410, concur. Elec. E. 500.

Not for graduate credit to students majoring in Civil E.

Principles of underground haulage and energy transmission systems and their application to mining problems. *Verner.*

**701 Civil Engineering Applications U G 4**  
**of Photo-Interpretation**

(746) A. 2 cl., 2 2-hr. lab.

Prereq.: 402, 671, 1 course in Geol.

Principles of photo interpretation, geology, and geomorphology applied to construction, transportation and hydraulic problems. Studies of air-photo indices of soils, aggregate sources and construction problems. *Mintzer.*

**711 Sanitary Engineering U G 3**  
**Laboratory**

(748) A. 2 3-hr. cl. and lab.

Prereq.: 612, Chem. 113 or equiv., Microbiol. 607 or equiv.

A laboratory study of the sanitary engineering indices pertinent to the control of water, sewage, streams, and industrial waste quality. *Hanna, Shumate.*

**712 Sanitary Engineering Design U G 3**

(749) Sp. 3 cl.

Prereq.: 612.

The design of unit operations and processes employed in the field of water supply and waste water including data collection and control instrumentation. *Cosens, Hanna.*

**713 Environmental Engineering U G 3**  
**Measurements**

W. 2 cl., 2 2-hr. lab.

Prereq.: 711, Chem. 221 or permission of instructor.

The application of advanced physical and chemical measurements to environmental engineering problems; instrumentation involving spectrophotometric, chromatographic, respirometer, and radiation measurement techniques. *Shumate.*

**716 Advanced Civil Engineering I U 3**

(742) A. 3 cl., 1 3-hr. lab.

Prereq.: 612, 632, 651, 671.

An integrated study of the principles and methods used in the solution of problems associated with the design and construction of a large engineering project.

**731 Reinforced Concrete Structures U G 4**

(705) A, Sp. 4 cl.

Prereq.: 552, 632.

Not for graduate credit to students majoring in Civil E.

Application of principles of structural engineering to the design of footings, retaining walls, and other reinforced concrete structures. *Bishara, Chen.*

**732 Timber Design U G 3**

(715) W. 3 cl.

Prereq.: 631, Engr. Mech. 521.

Basic properties of and design practice for timber when used as a construction material in engineering structures. *Smith.*

**733 Rigid Frame Structures U G 3**

A. 3 cl.

Prereq.: 631, 632, Engr. Mech. 521.

Analysis and design of rigid frame concrete structures. Wind stress analysis. *Bishara.*

**734 Design of Arch Structures U G 3**

Sp. 3 cl.

Prereq.: 531, 631, 632.

The analysis and design of arch structures. *Ojalvo, Smith.*

**736 Advanced Civil Engineering II U 4**

(744) W. 3 cl., 1 3-hr. lab.

Prereq.: 716.

Continuation of 716.

**751 Principles of Foundation U G 4**  
**Analysis and Design**

(726) A. 4 cl.

Prereq.: 651.

Subsurface exploration; shallow foundations; piles and caissons; embankments and excavations. *Wu.*

**752 Soil Stabilization U G 4**

(731) W. 2 cl., 2 3-hr. lab.

Prereq.: 651.

Study of principles of soil stabilization for highway surfaces. Design, durability, mechanical properties, construction. *Coffman, Majidzadeh.*

**771 Construction Methods and U G 3**  
**Equipment**

(723) A. 2 cl., 1 3-hr. lab.

Prereq.: 671.

Selection and management of construction equipment in building of highways, dams, airports, bridges, and structures. *Karrer.*

**772 Bituminous Materials and U G 4**  
**Mixtures**

(739) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 671.

Types and chemical composition of asphaltic materials, physical and chemical properties of asphaltic materials and mixtures. *Pagen.*

**773 Management of Engineering U G 4**  
**Construction**

Sp. 3 cl., 1 2-hr. lab.

Prereq.: 771 or permission of instructor.

Planning, scheduling, and supervision of engineering construction projects; use of Critical Path Method, bar charts, and other techniques. *Karrer.*

**776 Advanced Civil Engineering III U 4**

(745) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 736.

Continuation of 736.

**794 Advanced Civil Engineering U G 3-5**  
(799) A, W, Sp.

*Prereq.:* Senior or graduate standing with point average of 2.5 or better, and permission of department chairman.

Repeatable to a maximum of 20 cr. hrs., not more than 10 of which shall be in any one of the following subdivisions.

The advanced student is given opportunity to pursue advanced study. Work undertaken may be elected in the following fields of civil engineering:

- a. Structural Engineering.
- b. Soil Mechanics and Foundations.
- c. Sanitary Engineering.
- d. Highway and Transportation Engineering.
- e. Geodetic and Photogrammetric Engineering.
- f. Construction.
- g. Materials.

**801 Geodesy G 3-5**  
(808) A, Sp.

*Prereq.:* 601 and Math. 255, Civil E.: Master's candidates.

Triangulation reconnaissance, use and computation of geographic coordinates, study of various systems of plane coordinates, the more common map projections, geodetic astronomy and other problems involving the figure of the earth.

**810 Principles of Advanced Sanitary Engineering G 5**

(831) A. 3 cl., 2 3-hr. lab.

*Prereq.:* 410, 612, 711.

Advanced analysis and design theory pertinent to the field of sanitary engineering, including water supply, waste water disposal, stream and environmental sanitation and atmospheric pollution. *Cosens, Hanna.*

**811 Principles of Advanced Sanitary Engineering G 5**

(832) W. 3 cl., 2 3-hr. lab.

*Prereq.:* 810.

Continuation of 810.

**812 Principles of Advanced Sanitary Engineering G 5**

(833) Sp. 3 cl., 2 3-hr. lab.

*Prereq.:* 811.

Continuation of 811.

**830 Advanced Structural Engineering I G 5**

(826) Sp. 4 cl., 1 3-hr. lab.

*Prereq.:* 531 or equiv.

Analysis and design of statically indeterminate beams, frames and trusses, using classical methods of analysis. *Smith.*

**831 Advanced Structural Engineering G 5**  
**II (Reinforced Concrete)**

(827) W. 5 cl.

*Prereq.:* 733.

Effect of shrinkage and creep upon stress and deflection. Ultimate strength design of sections, and moment redistribution. Prestressed beam design theory and practice. *Bishara.*

**832 Plastic Analysis and Design G 5**  
(828) A. 5 cl.

*Prereq.:* 531, 631 or equiv.

Structural behavior in the inelastic range. Prediction of collapse loads. Structural steel design according to the plastic method. *Ojalvo.*

**833 Concrete Shell Structures G 5**

(829) Sp. 5 cl.

*Prereq.:* 531, 731, Math. 412.

Analysis and design of folded plate, barrel, and other prismatic structures; domes, hyperbolic and elliptical paraboloids. *Ojalvo.*

**834 Structural Analysis and Design G 5**  
**for Dynamic Disturbances**

(835) Sp. 5 cl.

*Prereq.:* 631, 731 Engr. Mech. 410, or equiv. or permission of instructor.

Structural dynamics. Principles and practice of dynamic design. Numerical and graphical methods. *Chen.*

**850 Seepage in Permeable Materials G 5**

(810) A. 5 cl.

*Prereq.:* 551.

Analysis of seepage volume and stresses in connection with excavation, dams, wells, slopes and subsurface drainage. Electroosmosis. *Gray, Wu.*

**851 Advanced Soil Properties G 5**

(815) W. 3 cl., 6 lab. hrs.

*Prereq.:* 651.

Detailed study and analysis of the mechanical properties of soils, with applications to foundation behavior. *Gray, Wu.*

**852 Structural Design of Pavements G 5**

(805) Su. 5 cl.

*Prereq.:* 851.

Stresses in pavements and behavior under moving loads. design of flexible and rigid pavements for highways and airports. *Pagen.*

**853 Soil-Structure Interaction I G 5**

(816) Sp. 5 cl.

*Prereq.:* 851.

Beams and struts in elastic foundation. Pavement slabs. Analysis and design of pile groups resisting lateral loads. Stress distribution in soils. *Gray.*

**854 Slope Stability Theory G 3.**

(817) W. 3 cl.

*Prereq.:* 651, 850.

Quantitative analysis of stability of natural slopes. Applications of theories of soil mechanics to slope stability.

**855 Soil-Structure Interaction II G 5**

(818) Sp. 5 cl.

*Prereq.:* 851.

Earth pressures on rigid and flexible buried or retaining structures. Arching. Tunnels. Cellular cofferdams. Foundation vibrations. *Coffman, Wu.*

**856 Viscoelasticity I G 5**

Sp. 5 cl.

*Prereq.:* 652, Math. 413.



Viscoelastic materials and their characteristics, discrete element models, spectral representation, creep and relaxation functions, and dynamics of viscoelastic behavior. *Majidzadeh, Pagen.*

### 857 Theory of Viscoelasticity G 5

A. 5 cl.

Prereq.: 856, Math. 414.

Operational form of the stress-strain equation, stress analysis in viscoelasticity, quasi-static problems, and dynamic problems. *Majidzadeh.*

### 858 Soil Dynamics G 3

A. 3 cl.

Prereq.: 851, Eng. Mech. 731 or permission of the instructor.

Stress waves in soils and vibration in soil masses; soil behavior under impact and repeated loading; design problems including vibrating foundations, blast pressures, and seismic stability. *Wu.*

### 870 Highway Administration G 5

(825) Sp. 5 cl.

Prereq.: 672.

A study of organization for planning, constructing, maintaining, and operating systems of roads and streets. *Karrer.*

### 871 Traffic Engineering I G 5

(821) A. 4 cl., 1 3-hr. lab.

Prereq.: 871, Engr. Mech. 200 or equiv., Math. 520 or concur.

Traffic Characteristics and Studies: Theory of traffic flow, dynamics of traffic movement, intersection performance, capacity, parking, accidents, origin-destination. *Schwar, Treiterer.*

### 872 Traffic Engineering II G 5

(820) W. 4 cl., 1 3-hr. lab.

Prereq.: 871 or equiv.

Principles of Traffic Operations in rural and urban areas; traffic laws, regulations, control and administration; street lighting, bus operation, parking and terminal operations. *Schwar.*

### 873 Traffic Engineering III G 5

Sp. 4 cl., 1 3-hr. lab.

Prereq.: 872 or equiv.

Urban Transportation: principles of trip generation, forecasting distribution and assignment, network analysis, mass transportation planning, terminal location, evaluating alternative urban transportation systems, trends in urban technology. *Schwar.*

### 881 Research Seminar G 1

(949) A. 1 cl.

Introduction to research activity.

### 885 Advanced Civil Engineering G 3-5

(899) A, W, Sp.

Prereq.: Graduate standing and permission of department chairman.

Repeatable to a maximum of 20 cr. hrs., not more than 10 of which shall be in any one of the fields listed below.

This course is intended to give the advanced students opportunity to pursue advanced study. Work undertaken may be elected in the following fields of civil engineering.

- a. Structural Engineering.
- b. Soil Mechanics and Foundations.
- c. Sanitary Engineering.
- d. Highway and Transportation Engineering.
- e. Geodetic and Photogrammetric Engineering.
- f. Construction.
- g. Materials.

### 896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3

Sp.

(See under Interdepartmental Seminars.)

### 999 Research in Civil Engineering G Arr.

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Classics

Office: 217 Derby Hall, 154 North Oval Drive.

PROFESSORS †BABCOCK (Chairman), †ABBOTT, †FORBES, †W. R. JONES, and †TITCHENER; ASSOCIATE PROFESSORS †LENARDON and †MORFORD; ASSISTANT PROFESSORS †BARMANN and HOL-SINGER.

See also Greek and Latin.

### 210 Classical Background of Scientific Terminology U 3

(510) A, W, Sp. 3 cl.

Study of technical and scientific terms from Greek and Latin sources; roots, word elements, word formation, analysis. Helpful in medical, biological, and kindred studies.

### 220 Greek Literature in Translation U 5

(520) A, W, Sp. 5 cl.

### 221 Latin Literature in Translation U 5

(521) A, W. 5 cl.

### 222 Classical Mythology U 5

(522) A, W, Sp. 5 cl.

### 224 Classical Civilization: Greece U 3

(524) A. 3 cl.

An introduction to ancient Greek civilization, concentrating upon important facets of literature, history, art, and archaeology. *Lenardon.*

### 225 Classical Civilization: Rome U 3

W. 3 cl.

An introduction to the civilization of ancient Rome, concentrating upon important facets of literature, history, art and archaeology. *Babcock.*

## Commerce Survey Courses

### 001 Commerce College Orientation U 0

(401) A, W. Arr.

*Prereq.:* Admission to College of Commerce and Administration with less than 45 quarter hours credit.

### 101 Business and Society U 3-5

(402) A, W, Sp. 3 to 5 cl.

*Prereq.:* Participation in the College of Commerce Junior Division Honors Program. Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

A critical examination of the socio-economic framework of business. Seminar discussion of selected readings. Lynn, Bartels, Helfrich, Kelley, and Brown.

### 301 College Seminar U 2-5

(798) A, W, Sp. 2-5 cl.

*Prereq.:* Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

## Comparative Literature and Languages

Office: 112 Derby Hall, 154 North Oval Drive.  
PROFESSOR ROGERS (Chairman), ASSOCIATE PROFESSOR HABER.

### 101 Introduction to Western European Literature: The Greek Contribution U 3

(401) A.

1st or 2nd yr. standing only.

Development of Greek ideas and ideals from Homer to Plato. A course in great books of the western world and the part they play in the development of modern European and American culture.

### 102 Introduction to Western European Literature: The Latin Contribution U 3

(402) W.

1st or 2nd yr. standing only.

Virgil, Lucretius, Dante, Cervantes. A course in great books of the western world and the part they play in the development of modern European and American culture.

### 103 Introduction to Western European Literature: The Modern World U 3

(403) Sp.

1st or 2nd yr. standing only.

Chaucer, Milton, Moliere, Shakespeare, Goethe. A course in great books of the western world and the part they play in the development of modern European and American culture.

## Conservation

Office: 241 Lord Hall, 124 West 17th Avenue.  
†C. A. DAMBACH (Chairman of Committee).

### 201 Introduction to Conservation of Natural Resources U 3

(401) A, Sp. 3 cl. and 1 2-day field trip.

An orientation on the nature and scope of natural resources and the technical, economic, social, and political aspects of conservation. Good, Johnson, Dambach.

### 202 Conservation Agencies U 3

(514) W. 3 cl.

*Prereq.:* 201 or permission of instructor.

Representatives of governmental agencies, private organizations, and university departments present programs and problems in their areas of conservation work. Johnson.

### 489 Field Work in Conservation U 5

(561) A, W, Sp. 10 weeks work experience.

*Prereq.:* 201 and permission of instructor.

Having secured approval prior to this work experience, the student registers for this course the following quarter, in addition to his normal load, and submits a written report to his adviser. Staff of cooperating departments.

### Natural Resources Problems, Programs, and Policies

(See Agr. Ec. 680)

### 693 Individual Studies in Conservation U G 2, 3 or 5

A, W, Sp. Cl. arr.

*Prereq.:* Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

## Dairy Science

Office: 116 Plumb Hall, 735 Stadium Drive.  
PROFESSORS †VANDEMARK (Chairman), †BRAKEL, †CONRAD, ELY (Emeritus), †FECHHEIMER, †GILMORE (Associate Chairman), †HARVEY, †HIBBS, KRAUSS, and †LUDWICK; ASSOCIATE PROFESSORS †PORTER, PRATT (Emeritus), †STAUBUS, and TAYLOR; ASSISTANT PROFESSORS ALLAIRE, BARR, BRUM, †GOMES, HINES, and KAESER; INSTRUCTORS JACQUEMIN, NEUHARDT, and RADER.

### Domestic Animals in the Service of Man

(See Animal Sc. 100)

(Offered in cooperation with the Department of Dairy Sc. and Poultry Sc.)

### 201 Fundamentals of Dairy Science U 5

(401) A, W, Sp. 3 cl., 2 2-hr. lab.

*Prereq.:* Biol. 102.

The production phases of the dairy industry and the physiological systems of dairy animals. Brakel.



**207 Dairy Cattle Type Evaluation U 3**  
(507) Sp. 1 2-hr. lab., 1 4-hr. lab.

Prereq.: 201 and 15 cr. hrs. in Biol. Sc.

Dairy breed type standards and their application to herd improvement.

**340 Dairy Herd Management U 5**  
(504) W. 3 cl., 2 2-hr. lab.

Prereq.: 201 and Animal Sc. 430.

Problems and practices concerned with efficient production of milk and successful operation of a dairy herd. Kaeser.

**420 Principles of Animal Improvement U 5**  
(502) A, W, Sp. 5 cl.

Prereq.: 201 or Animal Sc. 200 or Poul. Sc. 200, Math. 150, and Biol. 130.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

An introduction to the methods available for bringing about genetic change in farm animals. Fechheimer, Jaap, Parker.

**Principles of Animal Nutrition**

(See Animal Sc. 430.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

**Marketing Dairy Products**

(See Agr. Ec. 526.)

(Offered in cooperation with the Department of Dairy Sc.)

**593 Individual Studies U 3 or 5**  
(701) A, W, Sp.

Prereq.: Permission of instructor.

Special assignments and elementary research; students elect problems after conference with the instructor in charge.

**610 Physiology of Lactation U G 3**  
A. 2 2-hr. cl.

Prereq.: Vet. Physiol. 211 and 20 cr. hrs. of Dairy Sc., Animal Sc. or vertebrate biology.

The physiological, endocrine, nutritional and environmental factors influencing the synthesis and ejection of milk. Barr, Porter.

**612 Physiology of Reproduction U G 3 and Growth**  
A. 3 1-hr. lec.

Prereq.: Vet. Physiol. 211 and 20 cr. hrs. of Dairy Sc., Animal Sc., or vertebrate biology.

(Offered in cooperation with the Departments of Animal Sc. and Poultry Sc.)

Physiology of the reproductive system and of growth and development in farm animals; factors influencing reproductive performance. Ludwick.

**613 Laboratory in Reproductive Physiology and Artificial Insemination U G 3**

(614) A. 2 2-hr. lab.

Prereq. or concour.: 612.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Comparative anatomy and physiology of reproduction of farm animals; physiological bases for the use of artificial insemination in the research laboratory and in the field. Ludwick.

**Nutrition and Feeding of Ruminant Animals**

(See Animal Sc. 631.)

(Offered in cooperation with the Department of Dairy Sc.)

**640 Evaluation and Integration of Research for Dairy Operations U G 5**

Sp. 5 cl.

Prereq.: 201, 340, 420, Animal Sc. 430, Agr. Ec. 410, 5 cr. hrs. physiol., or permission of instructor.

The integration of scientific principles to maximize efficiency in dairy operations. Brakel.

**710 Advanced Reproductive Physiology U G 3 or 5**

(812) Sp. 2 2-hr. cl.

Prereq.: 612 and acceptable courses in physiol., anat., and biochem.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Recent advances in research in mammalian reproduction; optional individual research experience in reproductive problems with small and large mammals for additional credit. VanDemark, Gomes.

**720 Genetics of Animal Populations U G 5**

W. 5 cl.

Prereq.: 420 or Biol. 630 and 10 cr. hrs. in Math.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Theory and practice of analyzing and altering the genetic composition of animal populations. Swiger.

**800 Seminar G 1-3**

(801) A, W, Sp.

**810 Current Topics in Animal Physiology G 3**

(840) A, W, Sp. 2 hr. cl.

Prereq.: Acceptable courses in physiol., anat., and biochem.

Repeatable to a maximum of 12 cr. hrs.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**820 Current Topics in Animal Genetics G 3**

A, W, Sp. 3 cl.

Prereq.: Acceptable courses in animal genetics, math., and statistics.

Repeatable to a minimum of 12 cr. hrs.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

.01 Selection Index Theory

.02 Non-additive Genetic Variance

.03 Polymorphic Systems

.04 Simulation of Genetic Systems

.05 Cytogenetics of Animal Populations

.06 Physiological Indices in Animal Breeding

.07 Genetics of Threshold Characters

Fechheimer, Harvey, Jaap, Swiger.

**Advanced Studies in Nutrition**(See *Animal Sc. 830.*)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

**885 Research Principles and Methods G 5**

(714) Sp. 3 cl., 1 4-hr. lab.

Prereq.: Biol. 650, 8 cr. hrs. in math., and two qtrs. graduate study.

Survey and analysis of research in dairy and animal science, literature reviews, collection of data, preparation of bibliographies and presentation of reports. *Gilmore, VanDemark.***893 Individual Studies G 3 or 5**

(701) A, W, Sp.

Exploratory research and advanced assignments; students elect problems after conference with the instructor in charge.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.

(See under *Interdepartmental Seminars.*)**999 Research G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Dairy Technology**

Office: 122 Vivian Hall, 2121 Fyffe Road.

PROFESSORS †GOULD (Chairman), BURGWARD (Emeritus), †HARPER, †KRISTOFFERSEN, and †SLATTER; ASSISTANT PROFESSORS ARMSTRONG (Emeritus), BLAISDELL, HANSEN, HUSKEY, and †MIKOLAJCIK; INSTRUCTOR KENYON.

**201 Fundamentals of Industrial Dairying U 5**

(401) Sp. 3 cl., 2 2-hr. lab.

Scope, trends and practices of the dairy processing industry; role of industrial dairying in the agricultural complex; characteristics and utilization of milk and milk products. *Slatter.***289 Dairy Industry Apprenticeship U 3**

(415) A, W, Sp.

Graduation credit limited to students completing the Dairy Tech. curriculum. Ten weeks practical experience or equiv. in an approved dairy processing plant. Written report required.

*Kristoffersen.***411 Sensory Evaluation and Selection of Dairy Foods U 3**

(520) Sp. 3 2-hr. labs.

Prereq.: 201 or equiv. in dept. offering degrees in Food Tech.

Fundamentals of sensory perception; evaluation of dairy foods; panel selection and training; analysis and market application of results; products standards and grades. *Slatter.***489 Field Studies of Industrial Problems U 3**

(515) A, W, Sp.

Graduation credit limited to students completing the Dairy Tech. curriculum.

Ten weeks in plant study of industrial problems in approved dairy organizations. Written report required.

**493 Individual Studies U 3, 4 or 5**

(701) A, W, Sp. 9-, 12-, or 15-hr. lab.

Prereq.: Junior standing.

Individual study course to permit undergraduate students to explore in depth selected areas of dairy technology.

**521 Dairy Products Standards and Analysis U G 3**

(601) A. 3 cl.

Prereq.: 17 cr. hrs. Chem.

Not open for graduate credit to majors in Dairy Tech.

The modern dairy laboratory; chemical characterization and analysis of milk and milk products; selection, evaluation, and utilization of analytical methods; regulatory agencies and product standards. *Kristoffersen.***522 Dairy Products Standards and Analysis: Laboratory U G 3**

(602) A. 1 cl., 2 3-hr. lab.

Prereq. or concur.: 521.

Not open for graduate credit to majors in Dairy Tech.

Application of modern analytical methods to dairy products; comparison and interpretation of results; laboratory project studies and technical report preparation. *Kristoffersen.***623 Technical Control of Dairy Products U G 5**

(710) Sp. 3 cl., 2 3-hr. labs.

Prereq.: Senior or graduate standing.

Utilization of science and engineering in industrial technical control; application of advanced chemical, physical and microbiological techniques. *Harper.***631 Market Milk Industry U G 3**

(603) W. 3 cl.

Prereq.: Agr. E. 310.

Science, (engineering, and economic principles of unit operations in the fluid milk industry; product properties; quality control; public health aspects. *Harper.***632 Market Milk Industry: Laboratory U G 3**

(604) W. 1 cl., 2 3-hr. labs.

Prereq.: 631, Agr. E. 310.

Application of unit processes in the fluid milk industry; equipment use and production planning; processing and production control; special products. *Harper.***634 Butter and Cheese Industries U G 5**

(626) Sp. 3 cl., 2 3-hr. labs.

(627) Prereq.: 631 and 632.

Chemical, physical, and microbiological phenomena as related to butter, cheese, and similar products; application of engineering and business principles. *Kristoffersen.*



**636 Concentrated and Frozen Dairy Products Industries U G 5**

(609) A. 3 cl., 2 3-hr. labs.

(610) Prereq.: Agr. E. 411.

Unit operations in concentration and freezing; application and interpretation of principles of science, engineering, and management to the concentrated milk and frozen dairy desserts industries. Gould.

**693 Individual Studies U G 3-5**

(701) A, W, Sp. 9-, 12-, or 15-hr. lab.

Prereq.: Dairy Tech. 4th yr. standing and permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Individual project studies of current problems; planning, conducting, and reporting research.

**695 Seminar U G 3**

(651) A. 3 cl.

Prereq.: Dairy Tech. 4th yr. standing.

Not open for graduate credit to majors in Dairy Tech.

Leading research workers and their contributions; review, interpretation, and significance of current research; preparation and oral presentation of technical papers. Gould.

**745 Management of Dairy Operations U G 5**

(605) W. 2 3-hr. cl.

Prereq.: 4th yr. standing.

Organized management structure; practices and trends in dairy operations; efficiency guidelines; product, materials, and utilities conservation; personnel evaluation and utilization; analysis of current industry problems. Gould.

**850 Seminar G 1**

(800) A, W, Sp. 1 cl.

Graduate student-staff participation in a study of teaching and research trends and opportunities; critical analysis of research approaches, findings, and publications.

**885 Research Methods G 3-5**

(810) A, W, Sp. 9-, 12-, or 15-hr. lab.

Prereq.: 623.

Repeatable to a maximum of 15 cr. hrs.

Principles, application and interpretation of selected research methods for the investigation of physical, chemical, biological and/or engineering phenomena in dairy products and processes.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.

(See under Interdepartmental Seminars.)

**998 Research in Dairy Technology: Thesis G Arr.**

(950) A, W, Sp.

Research for thesis purposes only.

**999 Research in Dairy Technology: Dissertation G Arr.**

(950) A, W, Sp.

Research for dissertation purposes only.

**Dance**

Office: 219 Pomerene Hall, 1760 Neil Avenue.

PROFESSOR †ALKIRE (Coordinator); ASSISTANT PROFESSORS BLAINE, FERDUM, †KLEINMAN, and PAYTON; INSTRUCTOR PATTON.

**111 Techniques and Materials of Dance U 3**

(411) A. 5 2-hr. lab.

Prereq.: Permission of chairman.

Reqd. of majors in Dance.

Repeatable without credit.

Basic techniques and elementary composition.

**112 Techniques and Materials of Dance U 3**

(412) W. 5 2-hr. lab.

See requirements for 111.

Continuation of 111.

**113 Techniques and Materials of Dance U 3**

(413) Sp. 5 2-hr. lab.

See requirements for 111.

Continuation of 112.

**138 Dance in the Twentieth Century U 3**

Sp. 3 cl.

Not open to students with credit for 659.

Dance as a performing art in Europe and America; a survey of major stylistic trends, principal artists and their works.

**190 Ethnic Dance Forms U 3**

Sp. 2 1-hr. lec., 4 1-hr. lab.

Prereq.: 112.

Folk forms as practiced by ethnic groups in selected cultures.

**199 The University Dance Group U 1**

(424) A, W, Sp. 1 cl., scheduled rehearsals.

Prereq.: Admission by audition only.

Repeatable to a maximum of 12 cr. hrs.

The University Dance Group is a concert organization, dedicated to the study and performance of experimental and repertory dance works; three or more performances a year.

**214 Techniques and Beginning Composition U 3**

(414) A. 5 2-hr. lab.

Required of majors in Dance.

Repeatable without credit.

Continuation of 113.

**215 Techniques and Beginning Composition U 3**

(415) W. 5 2-hr. lab.

See requirements for 214.

Continuation of 214.

**216 Techniques and Beginning Composition U 3**

(416) Sp. 5 2-hr. lab.

See requirements for 214.

Continuation of 215.

**248 Reconstruction, Analysis, and Teaching of Folk Dance Forms U 3**

(548) Sp. 1 cl., 2 2-hr. lab.

Prereq.: Two qtrs. of modern dance or equiv.

Movement techniques and styles inherent in folk dance forms with application to teaching.

**438 Dance Notation I U 3**

(538) A. 2 cl., 2 1-hr. lab.

Prereq.: 111 or permission of instructor.

Fundamentals and principles of Labanotation.

**439 Dance Notation II U 3**

(539) W. 2 cl., 2 1-hr. lab.

Prereq.: 438 or permission of the instructor.

Continuation of 438 with emphasis on reading and writing scores.

**531 Theory and Practice of Modern Dance U G 3**

(631) Sp. 2 cl., 3 lab. hrs.

Prereq.: Permission of instructor.

Foundations for teaching and organizing instructional and extra curricular programs of modern dance in schools and colleges. Laboratory problems, lectures, readings and discussions.

**532 Dance Composition U G 3**

(632) A. 2 1-hr. cls., 4 lab. hrs.

Prereq.: Permission of instructor.

A study of composition based on elements of modern dance backgrounds and immediate sources of modern art; laboratory problems with criticism, readings, films, and slides. Alkire.

**533 Dance Production U 5**

(633) W. 2 1-hr. cls., 10 lab. hrs.

Prereq.: Permission of instructor.

A study of the production problems in staging dance for the theater; lectures, readings, and discussions. Alkire.

**534 Dance Repertory Literature I U G 3**

A. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 439 or equiv.

The reconstruction of a major dance work scored in Labanotation and choreographed for large groups.

**535 Dance Repertory Literature II U G 3**

W. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 439 and permission of the instructor.

Performing and writing passages of a dance work choreographed by an Artist-Dancer in residence, and preparation of the notations in score form.

**536 Dance Repertory Literature III U G 3**

Sp. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 537 or permission of instructor.

Directing small scale dance works scored in Labanotation and producing works for performance.

**537 Music for Choreography U G 3**

A. 3 1-hr. lec., 1 2-hr. lab.

Prereq.: 531 or equiv.

Study of music suitable for choreographic purposes and the various approaches to the use of music in dance composition.

**650 Advanced Dance Composition U G 4**

A, Sp. 2 2-hr. cl., 1 2-hr. lab.

Prereq.: 439, 532 or equiv.

Choreographic problems of groups: duets, trios, quartets, quintets. Analysis of dance works of recognized artists through films and dance scores written in Labanotation. Blaine.

**657 History of Dance I U G 3**

A. 3 cl.

A survey of basic dance forms and their functions in tribal societies, and the ancient civilizations of Egypt, Greece and Rome.

**658 History of Dance II U G 3**

W. 3 cl.

Survey of dance from the early Christian church through the Baroque period.

**659 History of Dance III U G 3**

Sp. 3 cl.

Development of Western dance in the nineteenth and twentieth centuries with emphasis on ballet and modern dance.

**693 Individual Studies in Dance Education U G 1-4**

(701) A, W, Sp.

Prereq.: Grad. or senior standing and permission of adviser.

Investigation of selected professional problems.

**994 Problems in Dance Education G 3**

(820G) A, W, Sp.

Advanced problems in dance education, individual or group participation.

## Dental Hygiene

Office: 333 Dentistry Building, 525 West 12th Avenue.  
 PROFESSORS †J. R. WILSON (Dean), WISE (Chairman and Director), †ALLISON, APLINGTON, BEYRER, †BOUCHER, DEW, †HEINTZ, †MCCONNELL, NEWTON, †PETTIT, W. POSTLE, SLETT, WHARTON, WHERRY, †WILLIAMS, and WOELFEL; ASSOCIATE PROFESSORS †APP, †BRUCE, †KOLAS, LONG, †PERMAR, H. POSTLE, TRIPPY, and WALTON; ASSISTANT PROFESSORS CONROY, HARPER, HULL, O'BRIEN, PAPPAS, REYNOLDS, and B. SNYDER; INSTRUCTORS ALLEN, BUCKEY, CATH-ERMAN, COOK, GREENAWALT, HERR, HOCKMAN, KUMLER, MOTE, MURPHY, NORDSTROM, ROSEN-BUSCH, SELSBY, WALLACE, WEISENSTEIN, and YAPLE.

**201 Dental Anatomy U 3**

(401) A. 1 cl., 6 lab. hrs.

Prereq.: Dent. Hyg. 1st yr. standing.

The morphology of human teeth and surrounding structures. Permar.



- 203 Dental Anatomy** U 2  
 (402) Sp. 1 cl., 3 lab. hrs.  
*Prereq.: Dent. Hyg. 1st yr. standing.*

A continuation of 201. The physiology of human teeth and surrounding structures. *Permar.*

- 223 Dental Prophylaxis** U 5  
 (403) Sp. 2 cl., 7 lab. hrs.  
*Prereq.: Dent. Hyg. 1st yr. standing.*

The demonstration of and the application of technical procedures for the removal of hard and soft deposits from the surfaces of the teeth. *Reynolds, Wise and Staff.*

- 233 Oral Histology and Embryology** U 1  
 (506) Sp. 1 cl.  
*Prereq.: Dent. Hyg. 1st yr. standing.*

A study of the microscopic anatomy of the teeth and surrounding structures; the development of the teeth, oral cavity, and face. *Permar.*

- 243 General Pathology** U 2  
 (501) Sp. 2 cl.  
*Prereq.: Dent. Hyg. 1st yr. standing.*

An introduction to general pathology including degenerative changes, inflammation, and repair. A discussion of the more common diseases affecting the human body. *Kolas.*

- 283 Oral Hygiene** U 1  
 (404) Sp. 1 cl.  
*Prereq.: Dent. Hyg. 1st yr. standing.*

A study of the formation of deposits on teeth, the maintenance of good oral hygiene, and the prevention of periodontal disease. *App.*

- 301 Anesthesia** U 1  
 (515) A. 1 cl. or 3 lab. hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

The role of the Dental Hygienist as an assistant in Anesthesia. Premedication; physiological responses to and pharmacological actions of anesthetic agents; emergency treatment. *Snyder.*

- 311 Dental Nursing** U 2  
 (502) A. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A discussion of ways in which the dental hygienist may assist the general practitioner of Dentistry or one specializing in any field of Dentistry. *Wise and Staff.*

- 312 Dental Nursing** U 2  
 (503) W. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

Problems which students encounter in the dental hygiene clinic. Practical experience in dental assisting. *Wise and Staff.*

- 313 Dental Nursing** U 1  
 (504) Sp. 1 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 312. The Dental Hygienist's responsibilities to her profession. *Wise and Staff.*

- 321 Clinical Dental Prophylaxis** U 3  
 (508) A. 3 clinic hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

Clinical application of principles taught in 223. *Wise and Staff.*

- 322 Clinical Dental Prophylaxis** U 5  
 (509) W. 15 clinic hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 321. *Wise and Staff.*

- 323 Clinical Dental Prophylaxis** U 5  
 (510) Sp. 15 clinic hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 322. *Wise and Staff.*

- 331 Materia Medica** U 1  
 (405) A. 1 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of drugs commonly used in dental practice and correct methods for their use. *Reynolds.*

- 341 Oral Pathology** U 1  
 (507) A. 1 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the clinical manifestations of the common diseases affecting the teeth and their supporting structures. *Bruce.*

- 351 Nursing Techniques for Dental Hygienists** U 2  
 (511) A. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the principles of nursing as they apply to the Dental Hygienist. *Newton and Staff.*

- 361 Oral Radiography** U 2  
 (512) A. 2 cl., or 6 lab. hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

The theory and technical procedures of oral radiography. *Pappas.*

- 372 Dental Materials** U 3  
 (505) W. 1 cl., 6 lab. hrs.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the composition, chemical and physical properties, manipulation and uses of various materials employed in the practice of Dentistry. *Woelfel.*

- 382 Oral Hygiene in the Schools** U 2  
 (513) W. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

The principles involved in effective Dental Health Education of the general public, especially school children. *Catherman.*

- 383 Oral Hygiene in the Schools** U 2  
 (514) Sp. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 382. An application of principles learned in (382) by actual teaching experiences and by visits to the schools; the history and organization of dental public health. *Catherman.*

- 393 Office Practices and Economics** U 2  
 (516) Sp. 2 cl.  
*Prereq.: Dent. Hyg. 2nd yr. standing.*

The role of the Dental Hygienist in dental practice and the economics involved. *Weisenstein.*

## Dentistry

Office: 120 Dentistry Building, 325 West 12th Avenue.  
 PROFESSORS †J. R. WILSON (Dean), †ALLISON,  
 †BOUCHER, DEW, †HEINTZ, KREIDER, †MCCON-  
 NELL, †PETTIT, †WILLIAMS, WISE, and WOELFEL;  
 ASSOCIATE PROFESSORS †APP, BECKWITH,  
 †BRUCE, †KOLAS, LONG, MARSHALL, †PERMAR,  
 POSTLE, ROSEN, RUSSELL, SPANGENBERG, TAY-  
 LOR, TRIPPY, †WADE, W. WALTON, and WINTER;  
 ASSISTANT PROFESSORS ASHELMAN, BAZLER,  
 †BLOZIS, BLUFF, BOUCHER, †BOWERS, CARNES,  
 CHANDLER, CHAPMAN, CLENDENEN, †CONROY,  
 CRUMP, CUMMINS, DAGEFOERDE, DEEDS, DILLEY,  
 GUMP, HIATT, HUFFMAN, HULL, IMHOFF, JEF-  
 FERIS, JOHANNES, LARRIMER, LUCKHART, McCOY,  
 †MOHNAC, O'BRIEN, PAPPAS, PARRISH, REY-  
 NOLDS, RUMBAUGH, RYAN, SKINNER, SNYDER,  
 F. STARR, J. STARR, C. WALTON, and ZACHERL;  
 and INSTRUCTORS.

### 301 Dental Anatomy P 2

A. 1 cl., 3 lab. hrs.

Prereq.: Dent. 1st yr. standing.

The morphology of human teeth and surrounding struc-  
 tures. *Trippy and Staff.*

### 302 Dental Anatomy P 4

W. 1 cl., 8 lab. hrs.

Prereq.: Dent. 1st yr. standing.

The physiology of human teeth and surrounding struc-  
 tures. *Trippy and Staff.*

### 303 Principles of Occlusion P 2

Sp. 1 cl., 3 lab. hrs.

Prereq.: Dent. 1st yr. standing.

The anatomy, physiology, actions and functions of the  
 human masticatory apparatus. *Trippy and Staff.*

### 305 Dental Materials P 1

W. 1 cl.

Prereq.: Dent. 1st yr. standing.

A review of physical properties of materials. A study of  
 dental impression material, cast materials, and denture  
 base resins. *Woelfel, Dew.*

### 306 Dental Materials P 1

Sp. 1 cl.

Prereq.: Dent. 1st yr. standing.

Materials used in the restoration of carious teeth, in-  
 cluding dental cements, waxes, plastics, amalgams, gold  
 foil, and casting gold alloys. *Chandler.*

### 320 Orientation and History of Dentistry P 1

A. 1 cl.

Prereq.: Dent. 1st yr. standing.

The evaluation of dentistry from the ancient period  
 through the medieval, colonial, early American and mod-  
 ern periods. *Wilson, Harper.*

### 381 Complete Prosthodontics P 4

A. 1 cl., 6 lab. hrs.

Prereq.: Dent. 1st yr. standing.

The elemental principles of impressions and jaw rela-  
 tions and procedures used in the construction of complete  
 dentures. *Boucher and Staff.*

### 382 Complete Prosthodontics P 4

W. 1 cl., 8 lab. hrs.

Prereq.: Dent. 1st yr. standing.

The principles and practices of arrangement of artifi-  
 cial teeth and processing and finishing complete  
 dentures. *Kreider and Staff.*

### 386 Fixed Partial Prosthodontics P 1

Sp. 1 cl.

Prereq.: Dent. 1st yr. standing.

Aims of service. Terminology and definitions. Correlation  
 with other curriculum areas. Indications, contra-indica-  
 tions, and factors relating to bridge construction. De-  
 scription of technic laboratory procedures. *Cummins.*

### 389 Removable Partial Prosthodontics P 5

Sp. 1 cl., 8 lab. hrs.

Prereq.: Dent. 1st yr. standing.

An introduction to the principles of design and con-  
 struction of removable partial dentures. *Heintz and Staff.*

### 403 Local Anesthesia P 1

Sp. 1 cl.

Prereq.: Dent. 2nd yr. standing.

The theory, chemistry and technique of local anesthesia  
 for dental procedures. *Hiatt.*

### 404 Dental Materials P 1

A. 1 cl.

Prereq.: Dent. 2nd yr. standing.

A study of dental casting procedures and associated ma-  
 terials, dental gold alloy and base metal wires, chrome-  
 cobalt and steel alloys, heat treatment of metals, welding  
 and soldering procedures, and abrasives and polishing  
 agents. *Chandler.*

### 413 Endodontics P 1

Sp. 1 cl.

Prereq.: Dent. 2nd yr. standing.

Basic techniques and procedures used in the treatment of  
 pulpless teeth. *Bazler.*

### 431 Operative Dentistry P 2

A. 1 cl., 3 lab. hrs.

Prereq.: Dent. 2nd yr. standing.

An introduction to the principles of Operative Dentistry;  
 the theory and technique for simple cavity preparations.  
*H. Postle and Staff.*

### 432 Operative Dentistry P 3

W. 1 cl., 6 lab. hrs.

Prereq.: Dent. 2nd yr. standing.

The theory and technical procedures for the preparation  
 of compound and complex cavities and the use of  
 amalgams and silicate as restorative materials. *H. Postle  
 and Staff.*

### 433 Operative Dentistry P 3

Sp. 1 cl., 6 lab. hrs.

Prereq.: Dent. 2nd yr. standing.

The theory and technical procedures for the use of gold  
 inlays and gold foils as restorative materials. Prepara-  
 tion for the clinical aspects of Operative Dentistry. *H.  
 Postle and Staff.*



- 452 Pedodontics** P 3  
W. 2 cl., 2 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
Orientation in pedodontics preparatory for clinical assignments. Patient management, modified operative procedures in cavity preparation, pulp management, the manipulation of prefabricated materials, and methods of prevention and control of dental caries. *Pettit and Staff.*
- 453 Pedodontics and Interceptive Orthodontics** P 2  
Sp. 1 cl., 3 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
Preparation of study casts. Construction of orthodontic bands, using different materials and techniques. Designing appliances for prevention, interception, or correction of incipient malocclusion. *Pettit, Williams, and Staff.*
- 462 Periodontics** P 1  
W. 1 cl.  
*Prereq.: Dent. 2nd yr. standing.*  
The etiology, pathology, and diagnosis of periodontal disease. *App.*
- 463 Periodontics** P 1  
Sp. 1 cl.  
*Prereq.: Dent. 2nd yr. standing.*  
Fundamental methods of prevention and treatment of periodontal disease. *App and Staff.*
- 482 Complete Prosthodontics** P 2  
W. 1 cl., 3 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
The principles and practices of the construction of immediate dentures, and of making esthetic denture restorations. *Larrimer and Staff.*
- 483 Complete Prosthodontics** P 3  
Sp. 1 cl., 6 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
The principles and practices of impression making as related to the anatomic, histologic and physiologic considerations. *Boucher and Staff.*
- 484 Fixed Partial Prosthodontics** P 2  
A. 1 cl., 3 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
Principles and technical procedures. Complete and partial crowns: preparation, fabrication, and casting in gold. *Long and Staff.*
- 485 Fixed Partial Prosthodontics** P 3  
W. 1 cl., 6 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
Construction of fixed partial restorations utilizing basic types of retainers, fixed and semi-movable connectors, gold and acrylic pontics. *Long and Staff.*
- 486 Fixed Partial Prosthodontics** P 3  
Sp. 1 cl., 6 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
Construction of fixed partial restoration with basic retainers and connectors and glazed porcelain pontic. Fabrication of acrylic jacket crown. *Long and Staff.*
- 487 Removable Partial Prosthodontics** P 3  
A. 1 cl., 6 lab. hrs.  
*Prereq.: Dent. 2nd yr. standing.*  
The relation of the diagnostic aspects of removable partial dentures to their design and construction. *Heintz and Staff.*
- 489 Removable Partial Prosthodontics** P 1  
Sp. 1 cl.  
*Prereq.: Dent. 2nd yr. standing.*  
The advanced principles and design of removable partial dentures and their clinical applications. *Heintz.*
- 501 Local Anesthesia and Oral Surgery** P 1  
A. 1 cl.  
*Prereq.: Dent. 3rd yr. standing.*  
The chemistry and pharmacology of local anesthesia and an introduction to the basic principles of oral surgery. *Hiatt, Snyder.*
- 502 Oral Surgery** P 1  
W. 1 cl.  
*Prereq.: Dent. 3rd yr. standing.*  
Theory and technique of basic exodontia and minor oral surgery. Post-operative complications and treatment. *Hiatt, Snyder.*
- 511 Endodontics** P 1  
A. 1 cl.  
*Prereq.: Dent. 3rd yr. standing.*  
Clinical applications of the principles and technical procedures in endodontics. *Bazler.*
- 512 Clinical Endodontics** P 1  
W. 2 clinic hrs.  
*Prereq.: Dent. 3rd yr. standing.*  
*Staff.*
- 513 Clinical Endodontics** P 1  
Sp. 2 clinic hrs.  
*Prereq.: Dent. 3rd yr. standing.*  
Continuation of 512. *Staff.*
- 531 Operative Dentistry** P 4  
A. 1 cl., 6 clinic hrs.  
*Prereq.: Dent. 3rd yr. standing.*  
Clinical diagnosis of pulp disease; protection and conservative treatment of the vital pulp; factors influencing the success or failure of restorative materials in clinical practice. *Beckwith and Staff.*
- 532 Operative Dentistry** P 4  
W. 1 cl., 6 clinic hrs.  
*Prereq.: Dent. 3rd yr. standing.*  
Detailed study of restorative materials; indications and contraindications for each; their manipulation and individual requirements in cavity preparation. *Beckwith and Staff.*
- 533 Operative Dentistry** P 4  
Sp. 1 cl., 6 clinic hrs.  
*Prereq.: Dent. 3rd yr. standing.*  
Clinical application of the theories and techniques of restoring carious and defective teeth. *Beckwith and Staff.*

**540 Oral Histology and Embryology P G 4**

A. 2 cl., 6 lab. hrs.

Prereq.: Anat. 640. Dent. 2nd yr. standing.

Embryology and histology of teeth and surrounding structures and their correlation to the practice of dentistry. *Melfi and Staff.*

**541 Oral Pathology P G 4**

A. 3 cl., 3 lab. hrs.

Prereq.: Dent. 3rd yr. standing, 540 and Path. 655.

The histopathologic and clinical study of oral disease processes that are chiefly of local origin. *Kolas and Staff.*

**542 Oral Pathology P G 1**

W. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The histopathologic and clinical study of oral disease processes that are associated with systemic disease or diseases of specific organ systems. *Kolas and Staff.*

**545 Oral Diagnosis and Treatment Planning P 1**

W. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The principles and methods of oral diagnosis, with emphasis on the medical and dental history of the patient. *Blozis, Bruce.*

**546 Oral Diagnosis and Treatment Planning P 1**

Sp. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The interpretation of signs and symptoms, medical laboratory tests, and treatment planning for the patient. *Blozis, Bruce.*

**547 Oral Radiography P 1**

A. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The theory and operation of radiographic equipment. Darkroom procedures. Discussion of anatomical landmarks as seen radiographically. Introduction of intraoral radiographic technics. *O'Brien.*

**548 Oral Radiography P 1**

W. 1 cl.

Prereq.: Dent. 3rd yr. standing.

Bisecting of the angle and long cone technics used in intraoral radiography. Extraoral radiographic technics. *O'Brien.*

**549 Oral Radiography P 1**

Sp. 1 cl.

Prereq.: Dent. 3rd yr. standing.

Interpretation of radiographic evidence of pathosis. Hazards of ionizing radiation. *O'Brien.*

**551 Pedodontics P 1**

A. 1 cl.

Prereq.: Dent. 3rd yr. standing.

Detailed study of materials presented in 452. Restorative materials used in pedodontics. The use of X-ray in pedodontic practice. *Pettit.*

**552 Clinical Pedodontics P 1**

W. 2 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

*Pettit and Staff.*

**553 Clinical Pedodontics P 1**

Sp. 2 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

Continuation of 552. *Pettit and Staff.*

**555 Orthodontics P 1**

W. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The etiology and classification of malocclusion, physiology of tooth movement, character of tissues involved. *Williams.*

**556 Orthodontics P 2**

Sp. 2 cl.

Prereq.: Dent. 3rd yr. standing.

Methods and appliances for the correction of malposed teeth. *Williams.*

**560 Periodontics P 1**

A. 1 cl.

Prereq.: Dent. 3rd yr. standing.

Clinical procedures used in the treatment of periodonal disease. *App.*

**561 Clinical Periodontics P 1**

A. 3 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

*App and Staff.*

**562 Clinical Periodontics P 1**

W. 3 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

Continuation of 561. *App and Staff.*

**563 Clinical Periodontics P 1**

Sp. 3 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

Continuation of 562. *App. and Staff.*

**572 Pharmacology P 1**

W. 1 cl.

Prereq.: Dent. 3rd yr. standing.

General pharmacology including the origin and methods of development of drugs. Basic pharmacy involving prescription writing, the metric and apothecary systems, drug standards and federal drug legislation and regulation. *Hiatt.*

**573 Pharmacology P 1**

Sp. 1 cl.

Prereq.: Dent. 3rd yr. standing.

The pharmacology of drugs with possible applications to dentistry, including premedications, postmedications, and drugs affecting the autonomic nervous system. *Hiatt.*

**581 Complete Prosthodontics P 2**

A. 1 cl., 2 clinic hrs.

Prereq.: Dent. 3rd yr. standing.

The principles and practices of maxillomandibular relation records, articulating instruments and occlusion. *Boucher and Staff.*



- 582 Complete Prosthodontics** P 3  
*W. 1 cl., 4 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The principles and clinical practice in the restoration of esthetics and facial expression by artificial dentures. *Boucher and Staff.*
- 583 Complete Prosthodontics** P 3  
*Sp. 1 cl., 4 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The clinical practice of the complete denture service including the care of patients after dentures have been inserted. *Boucher and Staff.*
- 584 Fixed Partial Prosthodontics** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Veneer crowns, dowel and core, temporary coverage. Diagnosis and treatment planning. Electroplating. Clinical applications and practice. *Long.*
- 585 Fixed Partial Prosthodontics** P 2  
*W. 1 cl., 3 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Elastic impression materials and related technics including use of gypsum products, waxes, tissue retraction, and sectioning methods. Clinical applications and practice. *Long and Staff.*
- 586 Fixed Partial Prosthodontics** P 3  
*Sp. 1 cl., 6 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Section of abutments and retainers, connectors and pontics. Additional types of bridgework procedures. Clinical applications and practice. *Long and Staff.*
- 587 Removable Partial Prosthodontics** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Complex problems of removable partial dentures and their clinical application. *Heintz.*
- 593 Individual Studies** P 1-6  
*A, W, Sp, Su.*  
 Individual studies in any of the recognized fields of Dentistry or Summer Clinic.
- 601 Physical Diagnosis** P 2  
*A. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 History taking; physical evaluation techniques; common laboratory analyses; nose, throat, and mouth examinations; physiology of normal and pathologic respiration, heart functions and circulation of blood. *Allison, Wallace, and Staff.*
- 602 Physical Diagnosis and Anesthesia** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Oxygen and carbon dioxide transport; electrolyte and fluid balance; pharmacologic action of sedatives, hypnotics, analgesics, narcotics, intravenous barbiturates, muscle relaxants, inhalation anesthetic agents. *Allison, Wallace and Staff.*
- 603 Anesthesia** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4 yr. standing.*  
 Laryngoscopy, endotracheal intubation, maintenance of anesthesia and management during recovery; management of emergencies; use of fluids, drugs, open and closed cardiac massage techniques, and analeptics. *Allison, Wallace and Staff.*
- 604 Oral Surgery** P 2  
*A. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Wound healing, inflammation, infection, their mechanism, diagnosis and treatment. Surgical management of exostosis, hyperplasias, and surgical preparation of the mouth for prosthodontics. *Allison, Wallace and Staff.*
- 605 Oral Surgery** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Diagnosis and surgical treatment plan for unerupted teeth. Incisions, methods for removal of bone, protection for adjacent teeth, hemostatic agents, antibiotics, sutures and suturing. *Allison, Wallace and Staff.*
- 606 Oral Surgery** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 605. Diagnosis, surgical treatment, and prognosis for pathologic conditions of the mouth and jaws, of the salivary glands and their ducts, and biopsy for lesions. *Allison, Wallace and Staff.*
- 612 Clinical Endodontics** P 2  
*W. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Staff.*
- 613 Clinical Endodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 612. *Kaiser and Staff.*
- 621 Dental Practice Administration** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental jurisprudence; ethics and legal aspects of the practice of dentistry. *Trippy, Harper, W. Postle and Wilson.*
- 622 Dental Practice Administration** P 1  
*W. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental economics, records, tax liability. *Trippy, Harper, W. Postle and Wilson.*
- 623 Dental Practice Administration** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 The social aspects of the practice of dentistry. *Trippy, Harper, W. Postle, and Wilson.*

- 631 Operative Dentistry** P 5  
*A. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Review of the basic principles of operative dentistry and their clinical application to special problems. *Taylor and Staff.*
- 632 Operative Dentistry** P 5  
*W. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Introduction of special technical procedures in Operative Dentistry and their clinical applications. *Taylor and Staff.*
- 633 Operative Dentistry** P 5  
*Sp. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 632. Advanced theories, technical procedures, and materials in Operative Dentistry; their value, limitations, and clinical application. *Taylor and Staff.*
- 641 Advanced Oncology** P G 1  
*A. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental aspects of oncology including the oral surgical, periodontic and prosthodontic management of patients with oral neoplastic disease and post-treatment morbidity. *Kolas.*
- 642 Advanced Oncology** P G 1  
*W. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Medical aspects of oncology including the diagnosis, treatment and prognosis of cancerous problems and discussion of recent advances in cancer research and etiology. *Kolas.*
- 643 Advanced Oncology** P G 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Clinico-pathologic conference pertaining chiefly to neoplastic disease, particularly in the head and neck regions. *Kolas.*
- 645 Clinical Oral Diagnosis and Treatment Planning** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Blozis, Bruce and Staff.*
- 646 Clinical Oral Diagnosis and Treatment Planning** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 645. *Blozis, Bruce and Staff.*
- 647 Clinical Oral Radiography** P 1  
*A. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*O'Brien and Staff.*
- 648 Clinical Oral Radiography** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 647. *O'Brien and Staff.*
- 649 Clinical Oral Radiography** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 648. *O'Brien and Staff.*
- 651 Pedodontics** P 2  
*A. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Diagnosis of pulp conditions of primary and young permanent teeth. Technics for treatment. Growth and development pertaining of pedodontics. Care of handicapped patients. *Pettit and Staff.*
- 652 Clinical Pedodontics** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Pettit and Staff.*
- 653 Clinical Pedodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 652. *Pettit and Staff.*
- 661 Clinical Periodontics** P 1  
*A. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*App and Staff.*
- 662 Clinical Periodontics** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 661. *App and Staff.*
- 663 Clinical Periodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 662. *App and Staff.*
- 672 Pharmacology** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The chemistry, indications, actions, and effects of antibiotics and analgesics. *Wallace.*
- 673 Pharmacology** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The chemistry of tranquilizers; indications for their use and their actions. A review of prescription writing. *Wallace.*
- 681 Complete Prosthodontics** P 3  
*A. 1 cl., 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The clinical practice of special occlusal problems, temporomandibular joint disturbances, cleft palate and surgical prosthesis. *Boucher and Staff.*
- 682 Clinical Removable Prosthodontics** P 2  
*W. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Boucher, Heintz and Staff.*



**683 Clinical Removable Prosthodontics P 2***Sp. 4 clinic hrs.**Prereq.: Dent. 4th yr. standing.*Continuation of 682. *Boucher, Heintz and Staff.***684 Clinical Fixed Partial Prosthodontics P 2***A. 4 clinic hrs.**Prereq.: Dent. 4th yr. standing.**Long and Staff.***685 Clinical Fixed Partial Prosthodontics P 2***W. 4 clinic hrs.**Prereq.: Dent. 4th yr. standing.*Continuation of 684. *Long and Staff.***686 Clinical Fixed Partial Prosthodontics P 2***Sp. 4 clinic hrs.**Prereq.: Dent. 4th yr. standing.*Continuation of 685. *Long and Staff.***700 Special Problems P G 1-15***(800) Su, A, W, Sp.***.01 Advanced Oral Surgery and Anesthesia***Prereq.: Oral Surg. graduate standing.*Diagnosis and treatment of surgical conditions of the teeth and contiguous structures. Advanced techniques in surgery and local and general anesthesia. *Allison.***.02 Advanced Orthodontics***Prereq.: Orthodontics grad. standing.*Applied osteology and myology in cephalometric roentgenographic interpretations; review of cephalic growth and development factors in normal occlusion; correction of malocclusions and dento-facial malformations. *Williams, Wade and Staff.***.03 Advanced Periodontics***Prereq.: Periodontics grad. standing.*Diagnosis and treatment of periodontal disease. Correlation between the diseases of the periodontium and probable systemic maladjustments, and maladjustments of a purely dental nature. *App.***.04 Advanced Prosthodontics**The diagnosis, treatment, and replacement of missing or lost teeth and parts of the mouth by prosthetic appliances; complete removable partial, or fixed partial restorations. *Boucher, Heintz and Woelfel.***.05 Advanced Oral Pathology and Diagnosis***Prereq.: Oral Pathology grad. standing.*The interrelationships of gross, microscopic, and clinical pathology. Current advances in the field of oral pathology and diagnosis. *Kolas.***.06 Advanced Endodontics***Prereq.: Endodontics grad. standing.*Clinical problems in endodontics and their correlation with the problems in related fields of dentistry and medicine. Surgical methods will receive attention. *Wilson.***.07 Advanced Pedodontics***Prereq.: Pedodontics grad. standing.*A study and clinical application of diagnosis and treatment of problems occurring in the various areas of pedodontic. *Pettit, Bowers.***.08 Advanced Dental Materials**Theory and practice in dental materials, particularly metals and plastics. *McConnell.***.09 Advanced Oral Histology and Embryology**The principles of histology and embryology applied to the structures in the oral region—their development, morphology, functions, and clinical relationships. *Melf.***.10 Advanced Operative Dentistry**Clinical problems in operative dentistry and their correlation with the problems in the related fields of dentistry and medicine. Special attention given to preventive dentistry. *Wilson.***785 Histologic Laboratory Technique P G 5***(600) A, W, Sp, Su.**Prereq.: Permission of instructor.*The preparation of oral and dental tissues for microscopic study. *Permar.***793 Individual Studies P G 1-5***(693) A, W, Sp, Su.**Prereq.: Permission of instructor.*

Special assignments in advanced phases of dentistry problems. Students will elect to work in desired subjects after a conference with the instructor in charge.

**795 Seminar in Dentistry G 1***(805) A, W, Sp. 1 cl.**Prereq.: Dent. graduate standing.*A discussion of recent advances in all branches of dental science. Review of original literature. *Conroy and Staff.***999 Research in Dentistry G Arr.***(950) A, W, Sp, Su.*

Research for thesis purposes only.

## Economics

Office: 239 Hagerty Hall, 1775 South College Road.

PROFESSORS †CRAIG (Chairman), †BODENHORN, †BOWERS, †BRUNNER, †CONDOIDE, †COONS, †HARRISON, HERBST (Emeritus), †JAMES, †LYNN, †MILLER, †OSTER, †PARNES, PATTON (Emeritus), †QUANTIUS, †SHERMAN, †TYBOUT, and WOLFE (Emeritus); ADJUNCT PROFESSOR RASKIND; ASSOCIATE PROFESSORS †CUNNYNGHAM, †DEWALD, †FLEISHER, †KELLEY, †L'ESPERANCE, †McCALMONT, TUTTLE (Emeritus), and †WARNE; ADJUNCT ASSOCIATE PROFESSOR APPLEBAUM; ASSISTANT PROFESSORS †BARTH, BOTTE (Emeritus), BOYD, BROWN, BUSHNELL, †CAMERON, GOLD, †LEVINE, †MICHAEL, NESTEL, †OKNER, STEVENS (Emeritus), and †WALTON; LECTURERS STEARNS and †STOCKER.

The Department of Economics offers opportunities for special study in the following subfields:

Economic Theory; History of Economic Thought  
Economic History; American and European

Money and Banking

Public Finance

Economic Statistics; Econometrics

International Economic Relations

Public Control

Labor

Institutions and Methods of Economic Planning

National Security Economics

Special Fields to be arranged

### 201 The Economic System U 5

A, W, Sp. 5 cl.

Study of basic characteristics, processes, and institutions of the economic system; significant problems arising in its operations; proposed solutions.

### 402 Introduction to Economic Theory U 5

A, W, Sp. 5 cl.

Prereq.: 201 or equiv.

Introduction to economic analysis, including the theory of the market; supply, demand, and price determination; income distribution; aggregate income and employment determination.

### 442 Elementary Economic Statistics U 5

(542) A, W, Sp. 4 cl. 1 2-hr. lab.

Prereq.: Completion of Math. requirement in college of student's registration, or Math. 116 and 117 where there is no college Math. requirement.

Discrete frequency distributions; probability and probability distributions; statistical inference including the Bayesian approach; estimation; one-way analysis of variance; simple linear regression and correlation; index numbers. L'Esperance, Nestel, Cunnyngnam, Stearns, Brown, and Staff.

### 500 Ideas of the Great Economists U G 3

(600) Sp. 3 cl.

Prereq.: 402 or equiv.

Critical analysis of ideas of great economists, factors which influenced those ideas; their impact upon social and economic development of the modern world. Harrison and Staff.

### 501 Intermediate Micro-economic Theory U G 3

A, W.

Prereq.: 402 or equiv.

Commodity price and output determination; factor price determination and functional income distribution; analysis for different types of markets.

### 502 Intermediate Macro-economic Theory U G 3

W, Sp.

Prereq.: 402 or equiv.

Analysis of the determinants of national output, income and employment levels; theory of economic growth and progressive equilibrium in an economy.

### 506 Current Economic Problems U G 3

(606) W. 3 cl.

Prereq.: 402 or equiv.

Not open to undergraduate and graduate students majoring in Econ.

Examination of current problems; optimum levels of employment; conditions underlying consumer expenditures; savings, investments; inflation, deflation; agriculture, public works, housing; regional development. Bowers and Staff.

### 512 Economic and Business History of Selected American Firms U G 3

(612) W. 3 cl.

Prereq.: 402 or equiv.

Evolving corporate enterprise within the framework of American capitalist doctrine. Analysis of outstanding firms; influence of unions and government in innovation, pricing, and other practices. Harrison.

### 520 Money and Banking U G 4

(620) A, W, Sp. 4 cl.

Prereq.: 402 or equiv.

Not open to graduate students in Econ.

Organization, operation, and economic significance of our monetary and banking system are discussed with special reference to current conditions and problems. Craig, Quantius, Brunner, McCalmont and Staff.

### 530 Government Finance in the American Economy U G 4

(636) A, W, Sp. 4 cl.

Prereq.: 402 or equiv.

Not open to graduate students in Econ.

Analysis of fiscal institutions and decision-making in the public sector of the American economy; budget planning and execution; taxation, debt, fiscal policy. Cameron, Stocker, Okner, Gold, Walton and Staff.

### 553 Population U G 3

(653) A. 3 cl.

Prereq.: 201 or equiv.

Impact of world population growth upon resources, productive capacities, scales of living, national defense, and international economic relations. Critical consideration of population theories and policies. Harrison.

### 560 International Economic Relations U 3

W, Sp. 3 cl.

Prereq.: 402 or equiv.

Not recommended for students who plan to take 665 and 666.

Survey of international economic relations; the basis of world trade; commercial and financial policy, particularly of the United States; and recent international economic organizations. Michael, Brown and Staff.

### 570 Government and Business U G 5

(671) A, Sp. 5 cl.

Prereq.: 402 or equiv.



Economics and legal aspects of Government regulation of business in the United States; philosophies and concepts of public control; contemporary problems. *Lynn, Boyd, Sherman.*

**580 Labor Economics and Industrial Relations U G 4**

(668) A, W, Sp. 4 cl.

Prereq.: 402 or equiv.

Not open to graduate students in Econ.

Survey of the field of labor economics; trade unionism, collective bargaining; wage determination, employment, unemployment; labor legislation. *Müller, Parnes, Levine, Kelley, Barth, Fleisher.*

**599 Honors Course U 1-15**

(700) A, W, Sp.

Open only to students enrolled in the Honors Program of the College of Arts and Sciences or the College of Commerce and Administration. Repeatable to a maximum of 15 qtr. hrs., but must be taken for at least two quarters.

Program of readings, conferences and reports arranged for the student who is a candidate for "Degree with Distinction" in Economics. *Fleisher.*

**610 Economic Development U G 5**

A. 2 2-hr. cl.

Prereq.: 520 or equiv.

Empirical and theoretical consideration of long-term economic changes, including changes in industrial structure, technology, and level of national product; emphasis on developing economics.

**613 Economic History of the United States U G 5**

(713) W. 2 2-hr. cl.

Prereq.: 402 or equiv.

General survey from discovery of America to present. European economic background. Westward movement and its effects. Development of economic institutions in the U. S. *Harrison, Walton.*

**614 Economic History of Western Europe U G 5**

(714) A. 3 cl.

Prereq.: 402 or equiv.

General survey from ancient to modern times. Interrelations between economic institutions, general culture, and economic thought. Modern capitalism. Agricultural, commercial, and industrial revolutions in modern times. *Harrison, Walton.*

**625 National and International Money Markets U G 3**

A. 3 cl.

Prereq.: 520 or equiv.

Organization, functions, and control of money markets and their submarkets. Flow of funds in these markets and investment policies of market participants. *Quintana, Brunner.*

**630 Fiscal Economics U G 5**

(634) A. 3 cl.

Prereq.: 530 or equiv. or permission of instructor.

The economics of government spending and taxation; analysis of the fiscal role and instruments of government and their effects on the economy. *Cameron, Stocker, Okner, Gold.*

**640 Statistical Analysis I U G 3**

(740) W. 3 cl.

Prereq.: 5 cr. hrs. of statistics.

Multivariate analysis, including analysis of variance; multiple regression and analysis of covariance; sampling and survey design. *L'Esperance, Cunningham, Nestel.*

**641 Statistical Analysis II U G 3**

(741) Sp. 3 cl.

Prereq.: 640 or equiv.

Review of matrix algebra; the general linear model; extensions of multivariate analysis.

**642 Statistical Analysis III U G 3**

(742) A. 2 1½-hr. cl.

Prereq.: 641 or equiv.

Review of the general linear model; identification; estimating criteria; single and simultaneous equation estimation; econometric applications. *L'Esperance, Cunningham.*

**644 Mathematical Economic Theory U G 3**

(644) A. 3 cl.

Prereq.: 402 or equiv., College Algebra or permission of instructor.

Application of essentials of calculus in deriving principal theorems of economic marginal analysis. Problems and examples. *Cunningham.*

**645 Linear Programming and Economic Analysis U G 5**

(745) A. 3 cl.

Prereq.: 402 or equiv., and 10 hrs in college level Math., or permission of instructor.

Techniques of linear programming applied to economic problems of allocation and valuation within the firm. *Tybout.*

**651 Consumption Economics U G 3**

W. 3 cl.

Prereq.: 402 or equiv.

Consumption from the standpoint of the individual and society; cost of living; standards and levels of living; consumer budgets; influences determining consumer choice. *Warne.*

**655 Income Distribution and Public Policy U G 3**

Sp. 3 cl.

Prereq.: 402 or equiv.

Trends in income distribution; analysis of measures of income distribution; policies influencing distribution; effects of income distribution on the economy. *Craig, Warne, Fleisher.*

**656 National Income Accounts and Flow of Funds Analysis U G 5**

A. 5 cl.

Prereq.: 402 or equiv. and Acc. 201 or 211 or equiv.

Theory and practice of aggregate economic analysis illustrated through national income and flow of funds accounts. *Coons.*

**663 Economic Problems of Western Europe U G 5**

W. 5 cl.

Prereq.: 402 or equiv.

European reconstruction; European Economic Community and the Free Trade Area; implications. *Condoide.*

- 665 International Trade and Finance** U G 5  
*W. 5 cl.*  
*Prereq.: 520 or equiv.*  
 Specialized production, comparative cost and advantages, and the gains from trade; international payments and receipts, possible equilibrium; balance-of-payments adjustments under different monetary systems; reforms. *James.*
- 666 International Commercial Policy** U G 3  
*Sp. 3 cl.*  
*Prereq.: 402 or equiv.*  
 Tariffs and other trade restrictions; economic effects of protective tariffs; regional economic integration; U. S. commercial policies; multilateral tariff reductions of America and Common Market. *James.*
- 670 Competition and Public Policy** U G 3  
*W. 3 cl.*  
*Prereq.: 570 or equiv. or 20 cr. hrs. of Econ.*  
 Nature, role, and regulation of competition; market structure and social performance; antitrust laws; current economic, legal, and policy problems in the antitrust area. *Lynn, Raskind, Boyd.*
- 672\* Public Utilities and Public Works** U G 3  
*Sp. 3 cl.*  
*Prereq.: 570 or equiv. or permission of instructor.*  
 Study of general economic characteristics and regulation of water, gas, electric, communications, and related industries, including atomic power. Government regulation versus public ownership. *Tybout, Boyd.*
- 676 Transportation Economics** U G 4  
*A, W. 4 cl.*  
*Prereq.: 570 or equiv., or permission of instructor.*  
 Study of general economic characteristics and government regulation of rail, motor, water, air, and pipeline carriers. Consideration of competitive relations between modes of transportation. *Tybout, Boyd.*
- 677 Transportation Planning and Coordination** U G 4  
*Sp. 4 cl.*  
*Prereq.: 676.*  
 Transportation, local development and industrial location. Criteria for public investment in highway, airport, and other transportation facilities. *Tybout, Boyd.*
- 679 Economics of National Security** U G 3  
 (770) *A. 3 cl.*  
*Prereq.: 402 or equiv.*  
 Analysis of economic problems arising from defense and war. Emphasis on implication of defense and war economy and on economic theory and institutions. *Sherman.*
- 680 Social Insurance** U G 3  
*A, Sp. 3 cl.*  
*Prereq.: 580 or equiv. or permission of instructor.*  
 Social insurance systems to provide economic and social security against the hazards of unemployment, sickness and injury, dependent old age, premature death and liability claims. *Bowers, Parnes.*
- 683 Unions and Collective Bargaining** U G 5  
*A, W. 3 cl.*  
*Prereq.: 580 or equiv.*  
 Development of unionism in the United States; structure and government of contemporary labor organizations; collective bargaining; settlement of labor-management disputes. *Miller, Parnes, Levine, Barth.*
- 684 Labor and the Government** U G 3  
*W, Sp. 3 cl.*  
*Prereq.: 580 or equiv.*  
 Public policy with respect to labor problems and industrial relations. Role of legislative, judicial, and executive branches of state and federal governments. *Miller, Parnes, Levine, Barth.*
- 688 Economics of the Labor Market** U G 5  
*Sp. 3 cl.*  
*Prereq.: 501, 502, and 580 or equiv.*  
 Materials and methods of labor market analysis; the measurement and behavior of unemployment, employers' and employees' labor market behavior; wage determination and labor allocation. *Parnes.*
- 690 Contemporary Economic Systems** U G 3  
*W. 3 cl.*  
*Prereq.: 402 or equiv.*  
 Comparative study of development and operation of economic institutions and principles in capitalistic, socialist, communist, and fascist economic systems.
- 691†\* Economics of Planning** U G 3  
 (687) *A. 3 cl.*  
*Prereq.: 402 or equiv.*  
 Analysis of the economics of planning and its major applications to private and public planning; procedures and techniques of economic planning.
- 693 Special Problems** U G 1-5  
 (699) *A, W, Sp.*  
*Advanced courses in Econ. and related fields. Juniors registered for 693 must have an average of B or better in all Econ. courses and a cumulative point hour of 3.0 or better, 1-5 cr. hrs. each qtr. in any one field, repeatable to a maximum of 15 hrs. Senior Staff.*  
 a. Economic Theory; History of Economic Thought.  
 b. Economic History, American and European  
 c. Money and Banking  
 d. Public Finance  
 e. Economic Statistics; Econometrics  
 f. International Economic Relations  
 g. Public Control  
 h. Labor  
 i. Institutions and Methods of Economic Planning  
 j. National Security Economics  
 k. Special Fields to be arranged
- 694 Special Studies** U G 1-5  
 (798) *A, W, Sp.*  
*Advanced courses in Econ. and related fields. 1-5 cr. hrs. each qtr. in any one field. Not more than 5 cr. hrs. may be received in any one field nor a total of more than 15 hrs. in the course. Senior Staff.*



- a. Economic Theory; History of Economic Thought
- b. Economic History, American and European
- c. Money and Banking
- d. Public Finance
- e. Economic Statistics; Econometrics
- f. International Economic Relations
- g. Public Control
- h. Labor
- i. Institutions and Methods of Economic Planning
- j. National Security Economics
- k. Special Fields to be arranged

**697†° Economics of Socialism U G 3**  
*W. 3 cl.*

*Prereq.: 402 or equiv.*

Survey of socialist thought and movements; relations of socialist thought to the theory and practice of socialist economics; planning, allocation, pricing, controls.

**698 Soviet Economic System U G 5**  
*Sp. 5 cl.*

*Prereq.: 402 or equiv.*

Survey of the Soviet economy with emphasis on planning; allocation of resources; spending, saving, and investing; public finance; agriculture; labor; and international economic relations. *Condoide.*

**Introduction to National Security**

(See Nat. Sec. Pol. S. 702)

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785)

**800 Research Methods in Economics G 2**  
*A. 1 2-hr cl.*

Methods of economic research, choice of research topics, and presentation and evaluation of results obtained. Required of all new graduate students in Economics. *Brunner, Coons and Staff.*

**Seminar in National Security Research**

(See Nat. Sec. Pol. S. 801)

**801 History of Economic Thought G 5**  
*W. 3 cl.*

Economic writings from the earliest times to Alfred Marshall (1890). *Patton.*

**802 History of Economic Thought G 3**  
*Sp. 3 cl.*

*Prereq.: 801.*

Orthodox and critical authors from Alfred Marshall to J. M. Keynes.

**803 History of Economic Thought G 3**  
*W. 3 cl.*

*Not open to graduate students in Econ.*

Economic writings from Smith to Keynes.

**805 Micro-economic Theory G 5**  
*(708) A, Sp. 4 cl.*

Nature of economic analysis; theory of demand, costs, and prices; factor price determination and functional income distribution; competition, oligopoly, monopoly, and monopsony. *James, Bodenhorn and Staff.*

**806 Macro-economic Theory G 3**  
*(709) A, W. 2 cl.*

Theory of income and employment; Keynesian aggregate supply and demand; consumption, saving, and the multiplier; determinants of investment and the accelerator; government's role. *James, Craig, Dewald, Bodenhorn, and Staff.*

**807\* Theories of Welfare Economics G 3**  
*Sp. 3 cl.*

*Prereq.: 805 or equiv.*

Study of economic standards and their application to economic welfare, or well-being. Mathematical techniques are employed. *Tybout.*

**808 Advanced Micro-economic Theory G 5**  
*(804A) Sp.*

*Prereq.: 805 and 806 or equiv.*

**809 Advanced Macro-economic Theory G 5**  
*(804B) A.*

*Prereq.: 805 and 806 or equiv.*

**810 Seminar in Economic Development G 3**

*W.*

*Prereq.: 610 or permission of instructor.*

*Repeatable to a maximum of 6 cr. hrs.*

Selected topics in economic development; theories of economic growth, problems of capital formation, investment criteria, economic planning. *Michael, Kelley.*

**811 Seminar in Economic History, American and European G 3**

*Sp.*

*Prereq.: 613 and 614 or equiv. or permission of instructor.*

*Repeatable to a maximum of 6 cr. hrs.*

Selected research topics in Economic History. *Harrison.*

**820 Monetary Theory G 3**

*W. 2 1½-hr. cl.*

*Prereq.: 520, 805, and 806 or equiv.*

Role of money in theoretical analysis of forces determining and influencing level of income, employment, and prices. *Craig, Brunner.*

**821 Central Banking and Monetary Policy G 3**

*Sp. 1 cl.*

*Prereq.: 520, 805, and 806 or equiv.*

Relation of bank supervision to economic growth and stability. Impact of differing bank structures upon policy. Techniques of monetary control. International monetary systems. *Quantius.*

**830 Seminar in Fiscal Economics G 3**

*W. 1 cl.*

*Repeatable to a maximum of 6 cr. hrs.*

Analysis of theoretical and applied aspects of fiscal economics in the American and foreign economies. Selected topics of current and permanent importance. *Lynn.*

**831° Legal and Economic Problems in Taxation G 3**

*A.*

Legal, economic, and administrative problems in taxation. *Lynn.*

**848 Seminar in Econometrics G 2**

A, W, Sp. 1 cl.

*Prereq.: Differential and integral calculus, and permission of instructor.**Repeatable to a maximum of 6 cr. hrs.*

Examination of economic problems whose solutions may advantageously be sought by use of the methods of mathematics and mathematical statistics. *L'Esperance, Cunninghamham.*

**851 Seminar in Business Fluctuations G 2 and National Income Accounting**

Sp.

*Not for graduate credit for majors in Econ.*

Current business cycle theory and national income accounting; evaluation of statistical measures of these phenomena; consideration and appraisal of recent literature in the field. *Coons.*

**852 General Business Conditions G 3 Analysis**

A, W, Sp.

*Prereq.: 20 cr. hrs. in Econ. and/or Bus. Org. and permission of instructor.**Not for graduate credit for majors in Econ.*

Theoretical and applied analysis of general economic conditions and their relation to decisions of the firm. *Craig, Coons, and Staff.*

**860 Seminar in International Economic Problems G 3**

A.

*Prereq.: 665-666.*

Seminar in analytical problems, theoretical and applied, of international economic adjustments; development of techniques for implementation of policies. *James.*

**870† Seminar in Economy and Polity G 3**

W.

*Prereq.: 670 or 672 or 676 or equiv.*

Economic bases for government participation in business activities: antitrust, regulation, and collective decision making. *Tybout.*

**871 Problems in National Security G 3-5 Economics**

W.

*Prereq.: 679 or equiv. or permission of instructor. 3-5 cr. hrs., at option of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Seminar designed to analyze in depth selected economic problems of national defense and defense-related activities. *Sherman.*

**879† Political Economy G 3**

W.

*Open only to doctoral candidates in Department of Bus. Org.*

An evaluation of selected topics in economics.

**880 Seminar in Industrial Relations G 3**

W.

*Prereq.: 683 or equiv. or permission of instructor.*

Selected topics and issues in contemporary trade unionism and collective bargaining. *Müller, Parnes.*

**881 Seminar in the Economics of the Labor Market G 3**

Sp.

*Prereq.: 688 or equiv. or permission of instructor.*

Selected topics and issues in wage determination, employment and unemployment. *Müller, Parnes, Kelley.*

**882 Seminar in Social Insurance G 3**

Sp.

*Prereq.: 680 or equiv. or permission of instructor.*

Analysis of federal and state social insurance measures and economic problems raised by them; the place of social insurance in the economic system. *Bowers.*

**899 Interdepartmental Seminars G 1-5**

A, W, Sp.

*(See under Interdepartmental Seminars.)***991†\* Seminar in Institutions and Methods of Economic Planning G 3***(891) Sp.**Prereq.: 690 or 697 or 698 or equiv. or permission of instructor.*

Comparative analysis of economic planning, institutions and methods at national regional, and local levels; consideration of degrees of planning ranging from centrally planned economics to quasi-public bodies.

**998 Seminar in Soviet Economic Problems G 3***(898) A. 3 cl.**Prereq.: 698 or permission of instructor.*

Current problems of the Soviet economy; economic growth, price policies, changing structure of the economy. *Condoide.*

**999 Research in Economics G Arr.***(950) A, W, Sp.*

Research for thesis or dissertation purposes only.



## Education

Office: 149 Arpa Hall, 1945 North High Street.

PROFESSORS †RAMSEYER (*Director*), †ALLEN, †ARISMAN, †BURNETT, †BURR, †CASSIDY, †CONRAD, †COOK, †COON, †CORBALLY, †CULBERTSON, †CYPHERT, †DALE, †DINITZ, †EBERHART, †FRAZIER, †FRYMIER, †GUSTAD, †HACK, †HANNA, †HARDING, †HAWS, †HENDRICKSON, †HERRICK, †THICKS, †HUCK, †HUELSMAN, †HUFFMAN, †HULL, †JENNINGS, †JEWETT, †KEMP, †KIRCHER, †KLOHR, †LARMEE, †LAUGHLIN, †LAZAR, †LEWIS, †LOGAN, †LOOMIS, †LUX, †MACCIA, †McBRIDE, †MEHL, †MOONEY, †MUESSIG, †PETERS, †PHELPS, †RAY, †REESE, †REYNARD, †RICCIO, †RICHARDSON, †SCHLESSINGER, †SCHNEIDER, †SIPE, †STAUB, †STEWART, †SUTTON, †TAYLOR, †TOMLINSON, †TOWERS, †TRIMBLE, †TYLER, †WAGNER, †WARNER, †WELLS, and †WOHLERS; ASSOCIATE PROFESSORS †ALBERTY, †ANDERSON, †ANDREWS, †BLANKE, †BOZEMAN, †DUNCAN, †EBOCH, †GIBBONY, †GILLIOM, †GLATT, †HOWE, †KING, †NOVAK, †OPENSHAW, †ORR, †OTTO, †PIMSLEUR, †RAMSEY, †ROADEN, †SANDERS, †SCHATZ, †SCHMIEDER, †SESSIONS, †SHRUM, †SMITH, †STEWART, †STROM, †TOLBERT, †UTTERBACK, †WILLIAMS, †WILLIS, †WOLF, and †ZIDONIS; ASSISTANT PROFESSORS †BARGAR, †BLUM, †BUCHANAN, †CADY, †CROSS-WHITE, †EIDELL, †ELLINGER, †FOGARTY, †FRANKIE, †GALLOWAY, †GRIFFITH, †HIGHTSHOE, †HOFFMAN, †INGERSOLL, †KOSTE, †LANGUIS, †MILLER, †NORTON, †OLSON, †OSBORNE, †ROLFE, †STEVENS, †STUFFLEBEAM, †STULL, †TEWSBURY, †TYLER, †ULLMAN, †WIGTIL, †WOOD, and †WOODRUFF.

## Areas

Adult Education—693.33, 672, 673, 925.33, 931, 932, 934, 993.33, 999.  
Audio Visual Materials—675, 693.46, 925.46, 993.46, 999.  
Curriculum and Instruction—K12, 435, 693.49, 816, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 871, 873, 887, 925.49, 999.  
Dental Hygiene Education—588.30.  
Educational Administration—693.44, 899, 925.44, 946, 947, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 993.44, 999.  
Educational Research—693.48, 858, 925.48, 925.50, 964, 965, 966, 967, 968, 993.48, 999.  
Elementary Education—460, 461, 467, 501, 502, 507, 508, 511, 513, 585, 693.10, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 823, 824, 827, 828, 829, 870, 925.10, 948, 993.10, 999.  
Exceptional Children—588.04, 588.32, 652, 653, 654, 655, 656, 659, 660, 661, 662, 663, 665, 666, 667, 668, 669, 693.47, 713, 714, 715, 717, 718, 719, 847, 848, 925.47, 993.47, 999.  
Fine Arts—586.03, 587.03.  
Guidance—693.34, 874, 875, 876, 877, 878, 879, 880, 881, 925.34, 993.34, 999.  
Health Education—587.24.  
Higher Education—693.35, 768, 851, 925.35, 939, 940, 941, 942, 943, 944, 999.  
Introduction to Education—108.  
Music—586.14, 586.15, 587.14, 587.15.  
Philosophy and History of Education—693.40, 693.41, 624, 632, 636, 637, 723, 724, 911, 912, 913, 914, 915, 916, 917, 925.40, 925.41, 927, 928, 929, 993.40, 993.41, 999.  
Physical Education—586.07, 586.08, 587.07, 587.08.  
Radio and Television Education—588.09, 677, 693.43, 925.43, 993.43, 999.

## Secondary Education

Teaching of English—560, 561, 587.25, 612, 613, 614, 925.25, 970, 971, 993.25, 999.  
Teaching of Foreign Languages—540, 587.16, 587.17, 587.18, 587.19, 587.20, 616, 617, 618, 693.45, 839, 925.45, 993.25, 999.  
Teaching of Mathematics—546, 587.26, 621, 622, 693.25, 841, 842, 843, 844, 845, 925.26, 993.26, 999.

Teaching of Science—551, 587.27, 625, 626, 627, 693.27, 849, 850, 851, 925.27, 993.27, 999.  
Teaching of Social Studies—526, 587.28, 624, 693.28, 925.28, 993.28, 999.  
Teaching of Speech—442, 556, 587.09, 588.09, 631, 693.09, 925.09, 993.09, 999.

## Vocational and Practical Arts Education

Business Education—010, 011, 012, 013, 210, 211, 212, 520, 521, 523, 524, 587.23, 601, 602, 693.23, 800, 801, 802, 803, 804, 805, 925.23, 993.23, 999.  
Distributive Education—529, 587.29, 605, 606, 608, 693.29, 807, 925.29, 993.29, 999.  
Industrial Arts Education—120, 231, 232, 233, 234, 235, 242, 243, 246, 251, 255, 420, 424, 425, 430, 433, 532, 533, 534, 587.21, 610, 693.21, 807, 832, 833, 834, 835, 836, 925.21, 993.21, 999.  
Trade and Industrial Education—575, 587.22, 649, 693.22, 925.22, 993.25, 999.  
Workshops and Field Experience—289, 690, 691, 692.

### 010 Typewriting I

U O

(401) A. 4 cl.

*Reqd. in the 2nd yr. of students majoring in business education who lack proficiency reqd. for admission to Ed. 210.*

Placement tests for students having had previous training in typewriting will be given during the first class meeting of 010 and 011. Students reporting for placement tests need not be registered in the course. Development of skill in the operation of the typewriter, in producing copy, and in concomitant learnings; the place of typewriting in business.

### 011 Typewriting II

U O

(402) W. 4 cl.

*Prereq.: 010.*

Continuation of 010.

### 012 Shorthand I

U O

(404) W. 4 cl.

*Reqd. in the 2nd yr. of students majoring in business education who lack proficiency reqd. for admission to Ed. 210.*

Placement tests for students having had previous training in shorthand will be given during first class meeting of 012 and 013. Students reporting for placement tests need not be registered in the course. The theory of Gregg shorthand, development of good shorthand penmanship, the ability to take dictation at increasing rates of speed, and the ability to transcribe longhand using correct punctuation and spelling.

### 013 Shorthand II

U O

(405) Sp. 4 cl.

*Prereq.: 012 or equiv.*

Continuation of 012.

### 108 Introduction to the Study of Education

U 3

(408) A, W, Sp. 3 cl.

An introductory study of cultural factors that affect education, with students helped to understanding through an examination of their own lives.

### 120 The Laboratory of Industries

U 4

(440) A, W, Sp. 5 2-hr. cl. and lab.

Orientation to technological origins of industrial arts teaching through experiences with tools, materials, processes, and products.

- 210 Advanced Stenography I** U 4  
(471) A, 4 2-hr. cl.  
Prereq.: 011 and 013 or equiv.

For placement tests in typewriting and shorthand, see Ed. 010 and 012. Continued development of speed and accuracy in shorthand and typewriting; development of skill in transcribing; transcribing voice-recorded dictation; duplicating.

- 211 Advanced Stenography II** U 4  
(472) W, 4 cl.  
Prereq.: 210.

Continuation of 210.

- 212 Advanced Stenography III** U 4  
(473) Sp, 4 cl.  
Prereq.: 211.

Continuation of 211.

- 231 Elements of Woodworking** U 4  
(441) W, 5 2-hr. cl. and lab.  
Prereq.: 120, 242, and Engr. Gr. 100.

Experience in planning and developing skills and knowledges of the construction of articles made of wood and of the industries involved.

- 232 Elements of Woodworking** U 4  
(442) A, Sp, 5 2-hr. cl. and lab.  
Prereq.: 231.

Continuation of 231.

- 233 Elements of Metalworking** U 4  
(443) W, 5 2-hr. cl. and lab.  
Prereq.: 120, 242, and Engr. Gr. 100.

Experience in planning and developing skills and knowledge of the construction of articles made of metal and of the industries involved.

- 234 Elements of Metalworking** U 4  
(444) A, Sp, 5 2-hr. cl. and lab.  
Prereq.: 120, 242, and Engr. Gr. 100.

Continuation of 233.

- 235 Elements of Printing** U 4  
(445) A, Sp, 5 2-hr. cl. and lab.  
Prereq.: 120, 242, and Engr. Gr. 100.

Experience in letter press, planography, and miscellaneous processes of printing, binding, and an overview of the graphic arts industry.

- 242 Problem Planning in Industrial Arts** U 3  
(460) A, Sp, 2 2-hr. cl. and lab.  
Prereq.: Engr. Gr. 100 or 102.

The planning of problems and projects suitable for the different areas and grade levels of the secondary school with references to function, style, and construction.

- 243 Elementary School Industrial Arts Activities** U 5  
(522) A, W, Sp, 5 2-hr. cl. and lab.  
Prereq.: 461 or equiv. Major standing in Elementary or Special Ed.

Laboratory experiences involving the use of tools, materials, processes, and products through which society supplies its need for food, clothing, shelter, tools, machines, records, utensils, and transportation.

- 246 Letter Press and Offset Printing** U 4  
(560) W, 5 2-hr. cl. and lab.  
Prereq.: 230 and Photog. 201.

Experience in letter press, photolithography, composition, bookbinding, editing, and publishing a limited edition. Professional consideration includes course materials, and planning a graphic arts laboratory.

- 251 Work Experience in Industry** U 3-6  
(581) A, W, Sp, 5 2-hr. cl.  
Prereq.: Major standing in Indust. Arts or Trade and Indust. Ed., and permission of instructor. Credit in 251, 289, and 587, not to exceed 22 hrs.

A first hand study of the working conditions, methods, and processes of industry and their implication for the teaching of industrial arts.

- 255 The Handicrafts** U 4  
(585) A, W, Sp, 5 2-hr. cl. and lab.  
Repeatable to a maximum of 12 cr. hrs.

Designed to develop skills and knowledge in the use of the common areas of handicrafts such as leather, metals, plastics, wood, and the graphic arts.

- 289 Field Service Projects in Education**  
(505)

Professional service with children or youth in some school or community agency. Supervision by both college and agency staff, weekly seminar, and evaluation paper.

- .01† Interpretation of September Field Experience in Schools** U 2  
A.

Limited to students who have completed 10 full school days of service in schools in the immediately preceding September.

- .02 Sp.** U 2-15

For students in all curricula in teacher education (elementary, secondary, and special subject areas) except those students registering for the special sections as listed below.

- .03† A, W, Sp.** U 2-5

For students in the curriculum in Fine Arts Education.

- .04 A, W, Sp.** U 3

For students in the Speech and Hearing Therapy Curriculum.

- .05 A, W, Sp.** U 3

For students in the Able Student Program.

- .06 A, W, Sp.** U 2-5

For students in the curriculum in Public Recreation.

- .07 A, W, Sp.** U 2-5

For students in the curriculum in Physical Education for Men.

- .08 A, W, Sp.** U 2-5

For students in the curriculum in Physical Education for Women.

- .09 A, W, Sp.** U 2-5

For students in the curricula in Speech and Radio-Speech.

- 420 Elements of Electricity in Industrial Arts** U 4  
(446) W, 5 2-hr. cl. and lab.

Prereq.: 120, 242, Engr. Gr. 100, Math. 116, and Physics 113.

An introduction to the principles and practices of electricity and electronics as these apply to industrial arts programs in secondary schools, and a study of the industries involved.



**424 Introduction to Power Mechanics U 4**  
(450) *W. 5 2-hr. cl. and lab.*

*Prereq.: 120, 242, Engr. Gr. 100, Physics 111, and Math. 116.*

An introduction to the field of industrial arts power and transportation. An over-view of the design, function, and operation of internal combustion engines and their auxiliaries.

**425 Internal Combustion Engines U 4**

(451) *A, Sp. 5 2-hr. cl. and lab.*

*Prereq.: 424.*

A technical study of internal combustion engines and automotive, marine, and aircraft equipment; experiences in engine analysis, malfunction diagnosis, maintenance, and repair.

**430 Residential and Industrial Utilization of Electrical Power U 4**

(456) *A, Sp. 5 2-hr. cl. and lab.*

*Prereq.: 420.*

An introduction to the principles and practices of electricity and electronics applicable to industrial arts programs in secondary schools, and a study of the industries involved.

**433 The Teaching of Driver Education U 3**

(547) *A, Sp. 1 2-hr. cl., 1 2-hr. lab.*

*Prereq.: 435, 4th yr. standing and valid driver's license.*

*Graduates of the College of Education who have completed this course will be eligible for certification to teach Driver Training Courses in the secondary schools of Ohio.*

Designed to prepare teachers to organize and conduct driver training classes in the secondary schools, including methods of teaching, scheduling, and other pertinent details.

**435 Theory and Practice in Secondary Education U 5**

(535) *A, W, Sp. 3 cl.*

*Prereq.: Psychol. 230. For students in School of Ed., junior standing reqd.; students in Phys. Ed., Phys. Ed. 232 or equiv.*

A laboratory field experience course introducing topics, problems, and skills common to prospective secondary school teachers.

**442 Creative Dramatics U 3**

*A, W, Sp. 3 cl. and lab.*

*Prereq.: Psychol. 230 or equiv.*

Philosophy, materials, methods, and evaluation of dramatic improvisation in developing creative artistic expression and problem solving.

**460 Elementary Education: Child Guidance U 4**

(515) *A, W, Sp. 2 2-hr. cl. and observation-participation.*

*Prereq.: Psychol. 230.*

*Not open in Su. to elementary majors who lack teaching experience. Additional time reqd. for observation-participation in an elementary school classroom.*

To develop an understanding of child growth and development principles in relation to instruction.

**461 Elementary Education: Conceptions of Teaching U 3**

(514) *A, W, Sp. 3 cl.*

*Prereq.: 460 and 5 cr. hrs. from the following: Soc. 220, Anthro. 261, Music 270 and 271, Fine Arts 290, Geog. 240.*

Designed to acquaint students with certain aspects of elementary school program which cut across separate subject areas, and to acquaint students with certain teaching behaviors.

**467 Introduction to Children's Literature U 3**

(521) *A, W, Sp. 3 cl.*

*Prereq.: 460.*

Study of literature for children with emphasis on standards for selecting materials with reference to the interest, needs, and abilities at different age levels.

**501 Kindergarten and Pre-School Teaching U 3**

(509) *A, W, Sp. 3 cl. and observation.*

*Prereq.: 460 or permission of instructor.*

Recent development in the education of young children and its influence on the selection and guidance of appropriate activities.

**502 Elementary Education: Arithmetic U 3**

(510) *A, W, Sp. 3 cl.*

*Prereq.: 461 and Math 105.*

A study of the methods and materials used in arithmetic instruction; includes development of functional relationships with other curriculum areas, diagnostic procedures, and remedial work.

**507 Elementary Education: The Language Arts U 3**

(516) *Sp. 2 2-hr. cl.*

*Prereq.: 460, 461, 467, and 3rd yr. standing.*

This course gives particular consideration to the teaching of language arts, including listening, oral, and written communication.

**508 Elementary Education: The Social Studies U 4**

(517) *A, W, Sp. 2 2-hr. cl., alternate 1 2-hr. cl.*

*Prereq.: 461 and Ed. 3rd yr. standing. 513 should be scheduled concur. on the same day of the week and at consecutive morning hours just prior to student teaching.*

*Not open in Su. to elementary majors who lack teaching experience.*

*Students may not schedule more than 20 cr. hrs. while taking this course.*

This course follows the sequential arrangement of the elementary education curriculum, placing particular emphasis upon the social studies in the elementary school program; participation in elementary classrooms required during school hours.

**511 Elementary Education: Science U 4**

(528) *A, W, Sp. 2 2-hr. cl., with additional time to be arr.*

*Prereq.: 460, 461, 467, and the University 15 hr. Basic Science Ed. Requirement.*

Consideration is given to the role of science in childhood education and to the study of content, methods, materials, and equipment appropriate for this program.

- 513 Elementary Education: Reading U 4**  
*A, W, Sp.: 2 2-hr. cl., alternate 1 2-hr. cl.*  
*Prereq.: 507, 508 should be scheduled concur. on the same day of the week and at consecutive morning hours just prior to student teaching.*  
*Not open in Su. to elementary majors who lack teaching experience.*  
*Students may not schedule more than 20 cr. hrs. while taking this course.*  
 A study of various methods and materials used in the teaching of reading in the elementary school today; participation in elementary classrooms required during school hours.
- 520 Teaching Typewriting and Office Practice U 2**  
*A. 2 cl.*  
*Prereq.: 011 or equiv., 435 and 4th yr. standing.*  
 Objectives, methods, classroom procedures, and materials for teaching typewriting and clerical practice.
- 521 Teaching Shorthand and Transcription U 2**  
*A. 2 cl.*  
*Prereq.: 013 or equiv., 435 and 4th yr. standing.*  
 Objectives, methods, classroom procedures, materials, and evaluation for teaching shorthand, transcription, and business English.
- 523 Teaching Bookkeeping and Office Machines U 3**  
*(544) W. 3 cl.*  
*Prereq.: Acc. 221 and senior standing.*  
 The objectives, methods, classroom procedures, and materials for teaching bookkeeping and accounting, office machines, and business arithmetic.
- 524 Methods of Teaching Basic Business Subjects U 3**  
*(544) A. 3 cl.*  
*Prereq.: 435, 4th yr. standing, and 25 cr. hrs. in Geog., Econ., and Bus. Org.*  
 Objectives, methods, classroom procedures, and materials for teaching general business, business law, consumer economics, and business organization in the high school.
- 526 Teaching of Social Studies I U 4**  
*(677) A, W, Sp. 4 cl.*  
*Prereq.: 435 and Hist. 104 or 123.*  
 Illustrative material will be drawn primarily from history with some attention to other social studies.
- 529 Methods of Teaching Distributive Education U 3**  
*(780) W. 3 cl.*  
*Prereq.: 435.*  
 The organization and preparation of teaching plans for distributive education classes; analysis of current on-the-job training methods in business establishments.
- 532 The Teaching of Industrial Arts I U 3**  
*(561) A. 4 cl.*  
*Prereq.: 435 and 3rd yr. standing.*  
 A critical study of objectives, methods of presentation, evaluation class and laboratory procedures, and professional problems.
- 533 The Teaching of Industrial Arts II U 3**  
*(562) W. 3 cl.*  
*Prereq.: 532 and 3rd yr. standing.*  
 Examinations and evaluation textbooks, industrial publications, and audio-visual materials suitable for the various grade levels; research and development; and special consideration for exceptional pupils.
- 534 The Teaching of Industrial Arts III U 3**  
*(563) Sp. 3 cl.*  
*Prereq.: 532 and 3rd yr. standing.*  
 Problem design and presentation; planning secondary school courses in drawing and the graphic arts; methods of student evaluation; and correlation with other subject fields; industrial practice.
- 540 The Teaching of Modern Foreign Language I U 4**  
*(688) A, W, Sp. 4 cl.*  
*Prereq. or concur.: 435.*  
 Practice in the use and preparation of teaching materials, tapes, discs, and other types of audio-visual aids.  
 a. W. French  
 b. W, Sp. Spanish  
 c. A. German
- 546 Teaching Mathematics in Secondary Schools I U 4**  
*(659) A, W, Sp. 4 cl. and 20 hrs. participation during quarter in appropriate secondary school Math. classes.*  
*Prereq.: 435 and Math. 153.*  
 A study of the concept and principles of mathematics appropriate for secondary school students, including a consideration of teaching procedures applicable to mathematics.
- 551 Science in Secondary Schools U 4**  
*(604) A, W, Sp. 4 cl.*  
*Prereq.: 435, Psychol. 230, and a major or minor in Phys., Biol., or Earth Sc.: admission to professional standing.*  
 Objectives, problems and procedures, preparing teaching plans, use of demonstrations, experiments, and projects, science curriculum and evaluation, instruments and procedures, texts and reference materials.
- 556 The Teaching of Speech in Secondary Schools U 4**  
*(627) A, W. 4 cl.*  
*Prereq.: 435 and Speech 205, 280, 305.*  
 The relationship of speech to the total school program with special emphasis on fundamental processes and forensic activities.
- 560 Teaching Literature in Secondary Schools U 4**  
*(670) A, W, Sp. 4 cl.*  
*Prereq.: 435, 561, and 10 cr. hrs. in Engl. courses numbered 200 or higher. Students who declare Engl. or a first major must complete both Ed. 560 and Ed. 561 prior to student teaching in Engl. Students who declare Engl. as a second major or as a minor must complete Ed. 561 prior to student teaching in Engl.*  
 The objectives of the literature program and techniques for developing appreciation and improving skills in the reading of various types of prose and poetry.



### 561 Teaching Grammar and Composition in Secondary Schools U 4

(671) A, W, Sp. 4 cl.

*Prereq.: 435 and at least 10 cr. hrs. in Engl. courses numbered 200 or higher. Students who declare Engl. as a first major must complete both Ed. 560 and Ed. 561 prior to student teaching in Engl. Students who declare Engl. as a second major or as a minor must complete Ed. 561 prior to student teaching in Engl.*

The role of grammar and linguistics in the English program and techniques for the teaching of oral and written expression in high school.

### 575 Vocational Trade Industrial and Technical Teaching U 3-6

A, W, Sp. Cl. hrs. arr.

*Prereq.: Temporary vocational teaching certificate in a trade or industrial subject, or eligibility for such certificate, and permission of instructor.*

*Repeatable to a maximum of 18 cr. hrs.*

A course planned to provide teaching methods and techniques and vocational course organization.

### 585 Elementary Education: Student Teaching

(518) *Prereq.: Ed. 4th yr. standing.*

*For additional information, see College of Education section.*

Observation, participation, and responsible teaching in a public school in the greater Columbus area. Individual and group conference or seminars. (Maximum transfer credit accepted is 6 hrs.)

.10 A, W, Sp. U 6-15

For students in the regular elementary education program.

.11 A, W, Sp. U 6

For approved students with 3 or more yrs. of successful teaching experience.

.12 Sp. U 6

For students in the program for graduates with Bachelor of Arts or comparable degrees.

.13† Sp. U 6

Second enrollment for students in the Study-Service Program.

### 586 Elementary School Student Teaching in Special Fields U 3-7

(520) *Prereq.: Ed. 3rd yr. standing.*

.03 Fine Arts

A, W, Sp.

.07 Physical Education (Men)

A, W, Sp.

.08 Physical Education (Women)

A, W, Sp.

.14 Instrumental Music

A, W, Sp.

.15 Vocal Music

A, W, Sp.

### 587 Student Teaching in Secondary Schools

(536) *Prereq.: Ed. 4th yr. standing.*

*For additional information, see College of Education section.*

Observation, participation, and responsible teaching in a public school in the greater Columbus area. Individual and group conferences or seminars.

A minimum of 12 credit hours is required.

The individual subject area is designated by a separate section number which should be used in enrolling. Students desiring teaching in more than one area should indicate accurately both section numbers and hours in each.

.03 Fine Arts U 3-15

A, W, Sp.

.07 Physical Education (Men) U 3-15

A, W, Sp.

.08 Physical Education (Women) U 3-15

A, W, Sp.

.09 Speech Education U 3-15

A, W, Sp.

.14 Instrumental Music U 3-8

A, W, Sp.

Continuation of 586.14.

.15 Vocal Music U 3-8

A, W, Sp.

Continuation of 586.15.

.16 German U 3-15

A, W, Sp.

.17 French U 3-15

A, W, Sp.

.18 Latin U 3-15

A, W, Sp.

.19 Spanish U 3-15

A, W, Sp.

.20 Russian U 3-15

A, W, Sp.

.21 Industrial Arts U 3-15

A, W, Sp.

.22 Trade and Industrial Education U 3-15

A, Sp.

.23 Business Education U 3-15

A, W, Sp.

.24 Health Education U 3-15

A, W, Sp.

.25 English U 3-15

A, W, Sp.

.26 Mathematics U 3-15

A, W, Sp.

.27 Science U 3-15

A, W, Sp.

.28 Social Studies U 3-15

A, W, Sp.

.29 Distributive Education U 3-15

A, W, Sp.

### 588 Student Teaching in Special Fields U 3-15

(537) *Prereq.: Ed. 4th yr. standing.*

*For additional information, see College of Education section.*

A minimum of 12 credit hours is required.

.04 Speech and Hearing Therapy

A, W, Sp.

.09 Radio-Speech Education

A, W, Sp.

.30 Dental Hygiene Education

A, W, Sp.

.31† School Psychological Service

A, W, Sp.

.32 Special Education

A, W, Sp.

**589† Internship in Secondary Schools**

(538) A, W, Sp.

Prereq.: 587.

No other course can be taken concur.

Provision of a professional setting in which the student may exercise and intellectualize the skills, insights, and decision making processes of the social studies teacher.

.28 Social Studies U 15  
A, W, Sp.

**601 Business and Office Education U G 2 Programs**

Sp. 2 cl.

Prereq.: 520 or 521 or 528 or equiv.

Organization, implementation, evaluation, and improvement of vocational office education programs on the secondary school level; required of all business education majors. Hanna.

**602 Cooperative Office Education U G 3**

Su. 3 cl.

Prereq.: 520 or 521 or 529 or equiv.

A study of new approaches to organization, operation, and supervision of the Cooperative Office Education Program and the understanding and evaluation of the recent thrust in vocational education and work-study programs. Jennings.

**605 Curriculum Content for Distributive Occupational Subjects U G 3**

(781) Sp. 3 cl.

Prereq.: 529.

Securing, evaluating, and organizing instructional material and experiences for distributive cooperative education and adult extension courses. Logan.

**606 Operation of Distributive Education Programs U G 3**

(782) W. 3 cl.

Prereq.: 435.

A practical study of the development and operation of a distributive education program. Logan.

**608 Practicum in Distributive Education U G 2-5**

A, W, Sp. Arr.

May be repeated once.

Student is not permitted to enroll for any other courses during the quarter.

Work in a retail, wholesale, or service occupation previously approved by the student's adviser to be taken by undergraduate students after the sixth quarter of work. Graduate students will be placed in a high school or post-secondary institution previously approved by the student's adviser. Logan.

**610 History of Practical Arts and Vocational Education U G 3**

(641) A. 3 cl.

Prereq.: Ed. or Agric. 3rd yr. standing.

History of those vocational and non-vocational phases of agriculture, business, industry, and homemaking which concern education.

**612 Linguistic Materials for High School Teachers U G 3**

(663) A, W, Sp. 3 cl.

Prereq.: 561, 10 cr. hrs. in Ed. courses numbered 300 or higher plus 10 cr. hrs. in Engl. courses numbered 300 or higher.

A study of traditional and modern linguistic systems of grammar and their bearing on the work of the English teacher. Zidonis.

**613 Literature for Adolescents U G 3**

(669) A, W, Sp. 3 cl.

Prereq.: 561, 10 cr. hrs. in Ed. courses numbered 300 or higher plus 10 cr. hrs. in Engl. courses numbered 300 or higher.

Fiction and nonfiction suitable for collateral reading of pupils in junior and senior high school; experience in book-reviewing, story-telling, oral interpretation, and discussion.

**614 The Supervision of Journalism in Secondary Schools U G 3**

(674) W. 1 cl.

Prereq.: 435 or equiv. and Jour. 204.

Not open for graduate credit to Jour. majors.

For journalism teachers in secondary schools and advisers. Covers editorial, advertising, circulation, mechanical production, and publishing phases of school newspapers, magazines, and annuals.

**616\* The Teaching of Modern Foreign Language II U G 4**

(692) A, W. 4 cl.

Prereq.: 435 and French 105 and 421, Span. 105 and 421, or Ger. 203 and 15 additional cr. hrs. in Ger., or Russ. 104.

Study of the preparation and use of new instructional materials; evaluation and testing; practical problems in the teaching of vocabulary, pronunciation, grammar, and reading. Allen, Otto, and Staff.

- a. A. French
- b. A. Spanish
- c. W. German
- d. W. Russian

**617 The Teaching of Foreign Languages in the Elementary School U G 4**

(603) A.

Prereq.: 15 cr. hrs. of Ed. and at least one 500-level course in a foreign language.

Skill development in teaching of spoken and written foreign languages on the elementary school level. Construction and use of suitable materials. Otto.

**618 The Teaching of Latin U G 3**

(694) W. 3 cl.

Prereq. or concur.: 435, Latin 201, 202, and an additional 6 cr. hrs. in Latin.

Content of this course includes: values, teachers' equipment, objectives, and methods; classroom procedures; lectures, and assigned readings. Morford.

**621 Teaching Mathematics in Secondary Schools II U G 4**

(660) A, W, Sp. 4 cl.

Prereq.: 546.

Selected problems in the teaching of mathematics, preparation and evaluation of teaching materials including textbooks, library books, study guides, and multisensory aid. Crosswhite, Lazar.

**622 Field and Laboratory Work for Teachers of Mathematics U G 3**

(689) A. 2 3-hr. cl.

Prereq.: 621 or equiv. and a major or minor in Math.

The laboratory teaching of mathematics. Actual experience with a wide variety of physical devices including classroom equipment and field instruments. Osborne.



- 624 Social Education U G 3**  
*A, W. 3 cl.*  
*Prereq.: 3rd yr. standing and 435 or 461 or permission of instructor.*

Analyses of social structures and processes in classroom grouping arrangements; teacher social roles, school traditions, ceremonies, clubs, and athletics. *Jewett.*

- 625 Practicum in Biological Science U G 3 for Teachers**

- (605) *A, W, Sp. 3 2-hr. cl.*  
*Prereq.: 551, 30 cr. hrs. in Biol. Sc. and 15 cr. hrs. in Chem.*

Use and design of apparatus, demonstrations, and experiments; collection and preservation of biological materials; the role of the living organism in the classroom. *Howe.*

- 626 Practicum in the Earth U G 3 Sciences for Teachers**

- (606) *W. 3 2-hr. labs.*  
*Prereq.: 551 and 30 cr. hrs. in Earth Sc. courses.*

Use of the laboratory and local field environment in teaching earth science; materials, demonstrations, and experimental methods. *Shrum.*

- 627 Practicum in General and U G 3 Physical Science for Teachers**

- (681) *W, Sp. 3 2-hr. cls.*  
*Prereq.: 551 and 30 cr. hrs. in major of Gen. or Phys. Sc.*

Use and design of apparatus, demonstrations, and experiments for general science, chemistry, and physics, with special emphasis on modern secondary school instructional materials in the sciences. *Schlessinger.*

- 631 Teaching Dramatics and Oral U G 4 Interpretation in Secondary Schools**

- (628) *W. 4 cl.*  
*Prereq.: 435 and Speech 205, 221, 270.*

The organization and conduct of dramatic classes and extra dramatic activities; resource planning for oral readings, choral speaking, radio-television programming, and theatrical productions. *Lewis.*

- 632 The History of Western U G 4 Education**

*A, W, Sp. 4 cl.*

Development of educational systems in the Western world since ancient times; education in relation to other social institutions; continuity of its evolution.

- 636 Historical Foundations of U G 4 American Education**

*A, W, Sp. 4 cl.*

Development of education in the United States since colonial times. Major emphasis on American education since 1830, including twentieth century developments. *Mehl.*

- 637 Philosophy of Education U G 3**

- (607) *A, W, Sp. 3 cl.*  
*Prereq.: 4th yr. standing.*

A study of various philosophies of education and their influences on methods, choice of subject matter, and the administration of the public school. *Kircher, Maccia, and Staff.*

- 649 Vocational Trade, Industrial U G 3 and Technical Education for Out-of-School Youth and Adults**

- (695) *A. 3 cl.*  
*Prereq.: 575 or equiv. and permission of instructor. Teaching or supervising experience reqd. for grad. credit.*

Philosophy, facilities, subject matter, instructional methods, teacher education, supervision, coordination; records and reports, types of programs and relationships. *Reese.*

- 652 Introduction to the Education U G 3 of Mentally Retarded Children**

- (666) *A, W. 3 cl.*  
*Prereq.: Psychol. 570.*

Study of casual factors, evaluations, learning potential, and general characteristics of the retarded child. *Cavin.*

- 653 Educational Planning for U G 3 Mentally Retarded Children and Youth**

- (713) *W.*  
*Prereq.: 652.*

A basic course for teachers and administrators which deals with curriculum goals and related educational planning for mentally retarded children and youth. *Cavin.*

- 654 Practicum in Educational U G 3 Planning for Mentally Retarded Children: Communicative Arts; Arithmetic; Natural and Social Science**

- (718) *W. 3 cl.*  
*Prereq.: 652 and 653.*

*Cavin.*

- 655 Practicum in Educational U G 3 Planning for Mentally Retarded Children: Communicative Arts; Arithmetic; Natural and Social Science**

- (719) *A. 3 cl.*  
*Prereq.: 654.*

*Cavin.*

- 656 Practicum in Educational U G 3 Planning for Mentally Retarded Children: Communicative Arts; Arithmetic; Natural and Social Science**

- (720) *Sp. 3 cl.*  
*Prereq.: 655.*

*Cavin.*

- 659 Techniques of Teaching Speech U G 3 to the Deaf**

- (611) *A. 3 cl.*  
 Study and practice in developing speech in the deaf. *Crawford.*

- 660 Techniques of Developing U G 3 Language in the Deaf**

- (650) *A. 3 cl.*  
*Prereq.: Psychol. 570 and Speech 644.*

A study of the techniques and procedures for developing elementary vocabulary and syntax for deaf children. *Crawford.*

- 661 Techniques of Developing Advanced Language in the Deaf** U G 3  
(651) W. 3 cl.  
Prereq.: 660.  
Study of techniques and procedures for developing advanced vocabulary and syntax with deaf students. Crawford.
- 662 Methods in Speech and Hearing Therapy** U G 3  
(612) A, Sp. 2 2-hr. cl.  
Prereq. or concur.: 435 or 507 or equiv., Speech 632 and 656.  
Organizing speech and hearing therapy programs in schools. State requirements; professional relationship; "Coordination Day" evaluation of progress; observation and child study; group vs. individual instruction. Crawford.
- 663 Behavioral Aspects of Language Disabilities** U G 3  
(613) W. 2 2-hr. cl.  
Prereq. or concur.: 435 or 507, and Speech 755.  
Classroom and therapy interrelationships. Consideration of aphasia, voice problems, deafness, and multiple handicaps. The use of records, reports, home visitations, parent conferences, and essential equipment. Crawford.
- 665 Instructional Programs for Exceptional Children** U G 3  
(667) W. 3 cl.  
Prereq.: 15 cr. hrs. in Psychol.  
Problems, evaluation, and adjustments related to the participation of exceptional children in the regular classroom, grades one through twelve.
- 666 Principles and Methods of Teaching Braille: Beginning** U G 3  
(608) A. 3 cl.  
Theory and practice in learning and teaching braille reading and writing, including the alphabet, numerals, twenty-six one-cell whole-word signs and seventeen dot-five compound contractions. Hunt.
- 667 Principles and Methods of Teaching Braille: Advanced** U G 3  
(609) W. 3 cl.  
Theory and practice in learning and teaching braille reading and writing with emphasis on contractions, punctuation, and manuscript writing. Preparation for certification in braille writing. Hunt.
- 668 Principles and Methods in the Education of Partially Seeing Children** U G 3  
(619) W. 3 cl.  
Identification of types and patterns of visual impairment; educational placement, facilities and programs for the partially seeing; impact of visual environment on sight; use of special equipment for partial seeing. Hunt.
- 669 Practicum in Educational Planning for Partially Seeing Children** U G 3  
(644) Sp. 3 cl.  
Prereq.: 668.  
Adaptations of curriculum for the partially seeing—methods and techniques; planning educational experiences; counseling and guidance for the partially seeing. Observation and participation required. Hunt.
- 672 Introduction to Adult Education** U G 3  
(770) A, W. 3 cl.  
Prereq.: 4th yr. standing, for Ed. majors, 435 or 461.  
The nature, extent, and significance of adult education; characteristics of the adult learner; methods; history, present trends, and future development.
- 673 Parent Education** U G 3  
(771) W. 3 cl.  
Prereq.: 4th yr. standing, for Ed. majors, 461 or 435.  
Nature, extent, and significance of the parent education movement; home and school relationships; methods and resources; training professional and lay leaders; local and state programs.
- 675 Audio-Visual Materials of Instruction** U G 3  
(602) A, W, Sp. 3 cl.  
Prereq.: 4th yr. standing.  
The contribution of audio-visual materials to educational objectives emphasizing the classroom use of such materials, utilization practices, basic sources of information, selection, and evaluation of field trips, films, records, etc.
- 677 Radio and Television in Education** U G 3  
(601) A, Sp. 2 2-hr. cl.  
Prereq.: 4th yr. standing.  
The varied types of educational broadcasting in relation to objectives, planning, production, utilization, and evaluation. Tyler.
- 690 Practicum in Problems of Public Education** U G 3  
(649) A, W, Sp. 3 cl.  
Prereq.: 461 or 435 or equiv.  
Repeatable to a maximum of 9 cr. hrs.  
Open to experienced teachers and administrators. Groups are organized around specific problems. Requests must be received by department chairman in time to allow for planning.
- 691 Field Laboratory in Conservation Education** U G 6-8  
(682) Su.  
Prereq.: 461 or 435 or permission of instructor.  
Courses on conservation education. Cooperatively staffed by four state universities of Ohio. Descriptive leaflet available from Departments of Education at Kent, Miami, Ohio, and Ohio State University.
- 692 On-Campus Education Workshops** U G 4-8  
(799) Su. 4 cr. hrs. for 3 week workshops, 8 cr. hrs. for 6 week workshops.  
Prereq.: 461 or 435 or equiv., teaching experience and permission of the workshop director.  
Intensive study of a problem common to the participating leaders and/or administrators for the purpose of developing sound principles and practices relating to it.
- |      |   |   |
|------|---|---|
| .10  | Elementary Education Workshop: Reading    | 4 |
| .10  | Elementary Education Workshop: Science    | 4 |
| .23† | Workshop on Office and Business Education | 4 |
|      | Su.                                       |   |



- .28 Workshop on the Teaching of Ohio History 4
- .29 Workshop designed to revise distributive education course of study and develop instructional materials 4  
Su.
- .33 Workshop in Adult Basic Education 4
- .34 Workshop on Guidance and Counseling in the Elementary School 4
- .43 Modern Media Workshop: Cross Media Approaches to Learning 4
- .44 On-Campus Education Workshop: Simulation of Selected Problems in School Administration 4
- .47 Slow Learning Adolescents 4
- .47 Workshop on the Education of Multi-Handicapped Children 4
- .47 Workshop in Occupational Orientation and Training for Slow Learning 4
- .49 Workshop in Curriculum and Instruction 4

Intensive study of curriculum and instructional problem common to participating teachers and/or curriculum workers. Emphasis is on developing skills and understandings leading to problem solutions.

### 693 Individual Studies in Education U G 1-4

(600) A, W, Sp.  
Prereq.: 435 or 480 and permission of instructor.

- .09 Speech Education
- .10 Elementary Education
- .21 Industrial Arts Education
- .22 Trade and Industrial Education
- .23 Business Education
- .25 Teaching of English
- .26 Teaching of Mathematics
- .27 Teaching of Sciences
- .28 Teaching of Social Studies
- .29 Distributive Education
- .33 Adult Education
- .34 Guidance
- .35 Higher Education
- .40 History of Education and Comparative Education
- .41 Philosophy of Education
- .43 Radio and Television Education
- .44 Educational Administration
- .45 Teaching of Foreign Languages
- .46 Audio-Visual Materials of Instruction
- .47 Exceptional Children
- .48 Educational Research
- .49 Curriculum and Instruction

### 710 Supervised Teaching in Special Classes U G 3-5

(764) A, W, Sp.  
Prereq.: 585 or 587, Psychol. 570 or permission of instructor.

Student teaching for qualified students in any area of special education, including speech and hearing therapy.

### 712 Evolution of Instruction and Guidance of the Deaf U G 3

(617) Sp. 3 cl.  
Prereq.: Psychol. 570.

Evolution of the oral and manual approaches of instruction of the deaf and their implication for the life adjustment problems of the deaf. *Crawford*.

### 713 Teaching Reading and Arithmetic to the Deaf U G 4

(734) W. 4 cl.  
Prereq.: 660.

Developing skills in reading arithmetic in the deaf. *Crawford*.

### 714 Teaching Social Studies and Science to the Deaf U G 3

(735) Sp. 3 cl.  
Prereq.: 713.

Teaching skills in academic subjects to the deaf on the intermediate and high school levels. *Crawford*.

### 715 Education of Multihandicapped Children U G 3

(736) Sp. 3 cl.  
Prereq.: Psychol. 570.

Differential diagnosis, classification, educational placement, and adjustment of multihandicapped children. *Cassidy*.

### 717 Educational Implications of Visual Impairments U G 3

(730) A. 3 cl.  
Prereq. or concur.: Psychol. 570.

A course for school personnel, including a survey of the structure, function, and hygiene of the eyes with emphasis on educational implications of visual disabilities of blind and partially seeing children. *Hunt*.

### 718 Education of the Emotionally and Socially Maladjusted U G 3

(766) Sp. 3 cl.  
Prereq.: Psychol. 570.

Critical study of principles and methods in the adjustment of behavior problem children. *Huelsman*.

### 719 Theory and Practice in the Education of Blind Children U G 3

(732) Sp. 3 cl.  
Prereq.: 717.

Current theories and techniques in the education of blind children; adapting general curriculum, specialized content, materials, and equipment for the blind child. *Hunt*.

### 723 Comparative Education U G 3

(777) A, Sp. 3 cl.  
Prereq.: 632 or 636.

Social and cultural factors influencing the differential development of educational institutions and organization. *Sanders, Sutton*.

### 724 Historical and Cultural Factors in the Evolution of Educational Systems U G 3

(778) W. 3 cl.  
Prereq.: 632 or 636.

Social and historical factors affecting stability and effectiveness of educational institutions and organization in countries where programs of universal education are of recent origin. *Sutton*.

**768 Directing Student Teachers U G 3**

A, W, Sp. 3 cl.

Prereq.: Bachelor's degree, teacher's certificate, and teaching experience.

Principles and techniques for directing the laboratory experiences of student teachers and other teacher education students. *Andrews.*

.51 For in-service school teachers and administrators.

.52 For graduate students with either a doctoral major or minor in teacher education.

**800 Principles of Business Education G 3**

(722) A. 3 cl.

Open only to graduate students majoring in business ed., distributive ed., and vocational ed.

Meaning, purpose, and scope of the business education program. Analysis of principles and fundamental issues. *Hanna.*

**801 Organization and Teaching of Office Practice G 3**

(723) W. 3 cl.

Prereq.: Bus. Org. 301 or equiv.

The purposes, content, organization, materials, and methods of evaluation for an office practice course; office practice as a part of an intensive vocational curriculum.

**802 Administration and Supervision of Business Education G 3**

(724) W. 3 cl.

Prereq.: Graduate status in business or vocational ed.

Administrative problems in business education related to program, facilities, placement and follow-up of graduates, public relations, and federal-state reimbursement. *Jennings.*

**803† Improvement of Instruction in Basic Business Subjects G 3**

(725) Su. 3 cl.

Prereq.: 524 or equiv.

A study of objectives, methods, materials, and methods of evaluation for courses such as general business, consumer education, and business law.

**804† Improvement of Instruction in Bookkeeping and Data Processing G 2**

(726) A.

Prereq.: 523 or equiv.

Evaluation of the content, materials, and methods of teaching bookkeeping, accounting, and data processing on the secondary and post-secondary school levels.

**805† Improvement of Instruction in Secretarial Subjects G 2**

(728) A, W. 2 cl.

Prereq.: 520 and 521 or equiv.

Teaching procedures basic to the development of vocational proficiency in typewriting, shorthand, and transcription; available instructional materials, evaluation, standards of achievement.

**807 Survey of Vocational Education G 3**

(717) A. 3 cl.

Open to vocational educators, school administrators, industrial arts students, and other graduate students who desire information about vocational education.

Prereq.: 435 or equiv.

A survey of vocational education, vocational guidance, and industrial arts. *Logan and Staff of the Division of Vocational Education of the State Department of Education.*

**811 Science in Elementary Education G 3**

(643) A, Sp. 3 cl.

Prereq.: 585 or 587 or 3 yrs. of teaching experience.

The significance of research for elementary school sciences, the relation of sciences to the elementary school curriculum and the functions of supervisory personnel. *Languis, Ramsey.*

**812 Mathematics in Elementary Schools G 3**

(654) A. 3 cl.

Prereq.: 585 or 587 or 3 yrs. teaching experience.

Not open to students in elementary education except by permission of departmental adviser.

Applications of research and theory to improve children's competence in computation and problem solving. Organization of instructional programs and contemporary instructional questions are considered. *Stull.*

**813 Language Arts in the Elementary School G 3**

(656) W. 3 cl.

Prereq.: 585 or 587 or 3 yrs. teaching experience.

Not open to students in elementary education except by permission of departmental adviser.

Problems and concerns for inservice teachers stressing current methods, issues and practices through study of significant literature and research findings. *King.*

**814 Social Studies in the Elementary School G 3**

(657) Sp. 3 cl.

Prereq.: 585 or 587 or 3 yrs. teaching experience.

Not open to students in elementary education except by permission of departmental adviser.

The educational values of social studies, reasons for, and ways and means of integrating history, geography, and civics. *Tomlinson.*

**815 Guidance Problems in the Elementary School G 3**

(661) W. 3 cl.

Prereq.: 585 or 587.

Selected problems which the elementary teacher faces in providing individual, small-group, and large-group guidance. *Tomlinson.*

**816 Laboratory Study of the Ohio State University School G 2-5**

(704) Sp. 1 cl.

Prereq.: 481 or 435 or equiv.

The philosophy and program of the University School, as revealed through reading, directed observation, and planned conferences with the staff. *Coon.*



**817 Advanced Course in Children's Literature G 3**

(741) A. Sp. 3 cl.

Prereq.: 467 or 813.

An evaluation of the changing role and increased importance of literature in the education of children and youth today. *Huck.*

**818 Foundations of Elementary Education G 3**

(747) A. 3 cl.

Utilization of research in the basic sciences in developing background and understanding of present trends in elementary education; critical examination of current theories. *Frazier.*

**819 The Changing American Elementary School G 3**

(748) W. 3 cl.

Prereq.: 585 or 587 or teaching experience.

Involves investigation of objectives, issues, and curriculum organization of the modern elementary school program. *Tomlinson.*

**820 Evaluation in Elementary Schools G 3**

(749) Sp. 3 cl.

Prereq.: 585 or 587 or teaching experience.

Appraisal of materials and methods in terms of educational aims and research findings; consideration of instruments and procedures for comparing achievements with established objectives. *Harding.*

**821 School Problems in Child Development G 3**

(753) Sp. 3 cl.

An advanced course based upon research in education and related fields which aids the teacher in guiding developmental activities of children in the elementary school.

**823† Creative Experiences in the Elementary School Curriculum G 3**

A. 3 cl.

Study of the nature of creativity and aesthetics as related to the elementary school curriculum.

**824† Designing School Programs for Children Age Two to Six G 3**

A. 3 cl.

A study of the characteristics and needs of children two to six years of age as they are related to the development of educational programs.

**827 Advanced Study in the Teaching of Developmental Reading G 3**

A. 3 cl.

Designed to provide experienced teachers the opportunity to extend and up-date their knowledge of the reading process and the principles underlying effective reading instruction. *King.*

**828 Trends and Issues in Teaching Reading in the Elementary School G 3**

(731) W. Sp. 3 cl.

Prereq.: 813 or permission of instructor.

An evaluation of the current trends and issues in the teaching of reading based upon the study of historical conceptions and comprehensive research in the field. *Huck, King.*

**829 Problems in Elementary School Curriculum and Supervision G 3**

(864) Sp. 3 cl.

Prereq.: 819 and 861.

An analysis of the programs and practices involved in facing major curriculum problems in the elementary schools; supervision and curriculum will be synthesized. *Frazier.*

**832 Industrial Arts in the Elementary School G 3**

(855) W. 3 cl.

Prereq.: 120 or 243 or equiv.

Selection, development, and evaluation of typical experience units in both classrooms and practical arts laboratory situations at all levels of the elementary schools.

**833 Industrial Arts Curriculum Planning G 3**

(714) W. 3 cl.

Prereq.: 587 or equiv.

Review of resource reports, general and special criterion developments, formulation of curriculum guides, and laboratory manuals of instruction. *Ray.*

**834 Planning Industrial Arts Facilities G 3**

(715) A. 3 cl.

Principles of industrial arts and technical laboratory planning including equipment selection for all school levels and meeting all curriculum requirements. *Luz.*

**835 Organization and Administration of Industrial Education G 3**

(815) Sp. 3 cl.

Prereq.: 836.

International and historic background curriculum resources and development, physical organization, administrative organization, supervisory operation, and professional policies. *Luz.*

**836 Practicum in Industrial Arts Education G 3-5**

(856) A. 3 cl.

Prereq.: 587.

Derivation of doctrine, formulation, and evaluation of basic programs, curriculum development, organizational implementation, leadership problems, and professional progress, both here and abroad.

**837 Research in the Laboratory of Industries G 3**

(866) W. 3 cl.

Prereq.: 833 or 834, teaching experience in Indust. Arts or Vocational Indust. Ed., and permission of instructor.

Individual or group studies on a conference and laboratory basis, with the publication of either a professional or technical bulletin as a goal.

**839 Applied Linguistics in the Teaching of Foreign Languages G 3**

(779) W. Sp. 3 cl.

Prereq.: 15 cr. hrs. in Ed. and at least one French or Spanish course on the 600 level.

Analysis of research in Applied Linguistics; construction of drills, laboratory exercises, and tests; lexical items and structural inventory of French or Spanish. *Allen.*

a. Sp. Spanish

b. W. French

- 841 The Use of Certain Concepts of Philosophy and Logic in the Teaching of Mathematics** G 3  
(761) W. 3 cl.  
Prereq. or concur.: 621 or equiv.  
A study of the role of physical materials and certain concepts of philosophy and logic in the teaching of arithmetic, algebra, and geometry. *Lazar.*
- 842 Number Concepts in School Mathematics** G 3  
A. 3 cl.  
Prereq.: 841 or permission of instructor.  
The concept of number systems from the point of view of a teacher who plans to introduce them to students in grades K-12. *Trimble.*
- 843 Algebraic Concepts in School Mathematics** G 3  
(762) W. 3 cl.  
Prereq.: 841 and undergraduate major or minor in Math.  
Such concepts as algebraic structures, order structures, and relation and function as unifying themes for school mathematics. *Trimble.*
- 844 The Teaching of Geometric Concepts** G 4  
(840) Sp. 4 1-hr. or 2 2-hr. cl.  
Prereq.: 621 or 649 or equiv.  
The role of demonstrative geometry, two- and three-dimensional concepts, the nature of proof and teaching procedures which emphasize both deductive and algebraic methods. *Crosswhite.*
- 845 Curriculum and Supervision in School Mathematics** G 4  
Sp. 4 cl. plus observation and participation in selected schools.  
Prereq.: 842, 843, 844, or permission of instructor.  
The role of state and local supervisors in the design, implementation, and supervision of school mathematics programs (K-12) with analysis of contemporary programs and materials of instruction. *Crosswhite, Osborne.*
- 847 Preparation of Handicapped Children for Post-School Adjustment** G 3  
(772) Sp. 3 cl.  
Prereq.: Psychol. 570.  
Study of the roles of education, guidance, work experience, placement, and follow-up service in helping handicapped children adjust to employment, family, and community life. *Cavin.*
- 848 Organization of Programs for Exceptional Children** G 3  
(849) Sp. 3 cl.  
Prereq.: 665 and 946, Psychol. 570.  
Planning and financing of educational programs for children who are gifted, mentally deficient, blind, partially seeing, deaf, hard of hearing, emotionally disturbed, or who have learning problems or other handicaps. *Cassidy.*
- 849 The Supervision of School Science Programs** G 4  
(706) Sp. 4 cl.  
Prereq.: 551 or equiv. and teaching or supervisory experience.  
For those concerned with supervision of teacher education programs in science: objectives, curricula, recent trends, classroom management, evaluation of teaching, professional literature. *Schlessinger.*
- 850 Science in the School Curriculum** G 4  
(712) W. 4 1-hr. cl.  
Prereq.: 551 or equiv. and teaching or supervisory experience.  
Foundations for science curriculum, current developments, planning and evaluation procedures, research. *Richardson.*
- 851 Science Education in Higher Education** G 4  
W. 2 2-hr. cl.  
Prereq.: 551 or equiv. and 849 or 850 or equiv.  
Course and curricula for teacher preparation programs in science, clinical experience including student teaching, facilities, evaluation, and research, and the role of science education centers.
- 858 Introduction to Educational Research** G 3  
(710) A, W, Sp. 3 cl.  
Prereq.: 585 or 587 or equiv.  
Not open to students with credit for 988.  
A review of major research strategies and the role these strategies play in educational development, with emphasis upon the conceptualization of educational problems. *Bargar, Norton.*
- 859 The Junior High School Curriculum** G 3  
(676) A. 3 cl.  
Prereq.: 435 or equiv.  
A study of the various types of junior high school programs, with special emphasis upon teaching-learning procedures as they apply to the early adolescent years. *Alberty.*
- 860 Fundamentals of Curriculum** G 3  
(701) A, W, Sp. 3 cl.  
Prereq.: 818 or 882.  
Not open to students with credit for 888.  
A beginning course in curriculum designed to serve as an overview of the field of curriculum and instruction: Kindergarten through 12th grade. *Alberty, Klohr.*
- 861 Fundamentals of Supervision** G 3  
(702) A, W, Sp. 3 cl.  
Prereq.: 860.  
A beginning course in supervision of instruction emphasizing general principles and practices in elementary and secondary schools. *Frazier, Klohr.*
- 862 The Role of the School in the Social Order** G 3  
(703) A, W. 3 cl.  
Prereq.: 585 or 587 or equiv.  
An orientation course for teachers and administrators which deals with the basic purposes of secondary education in relation to major issues and current trends. *Frymier.*



- 863 Evaluation in Secondary Schools** G 3  
(708) A, Sp. 3 cl.  
Prereq.: 585 or 587 or equiv.

Study of techniques of evaluation in secondary schools. Attention is given to current evaluation practices with emphasis on procedures appropriate to Ohio schools. *Arisman.*

- 864 Fundamentals of Instruction** G 3  
(705) A, Sp. 3 cl.  
Prereq.: 585 or 587 or equiv.

Survey of instructional theory and related behavioral science disciplines. Emphasis is on application of principles of instructional theory to classroom teaching. *Duncan.*

- 865 Curriculum Theory** G 3  
(868) W. 3 cl.  
Prereq.: 861 or equiv.

An advanced course in curriculum: Kindergarten through 12th grade. *Klohr.*

- 866 Supervision Theory** G 3  
(868) Sp. 3 cl.  
Prereq.: 861 or equiv.

An advanced course in supervision of instruction: Kindergarten through 12th grade. *Frazier.*

- 867 Educational Experimentation** G 2-5  
(804) W. 1 2-hr. lab. conf. arr.  
Prereq.: 858 or equiv. and 15 cr. hrs. of grad. work in Ed.  
Repeatable to a maximum of 5 cr. hrs.

Analysis of contribution of selected experiments to elementary, secondary, and higher education. Design of experimental method for attacking educational problems. *Duncan.*

- 868 Laboratory in Curriculum Development in Secondary Schools** G 3  
(831) Sp. 3 cl.  
Prereq.: 862 or equiv.

An advanced course in techniques of curriculum development and organization. Specific problems in curriculum development which are of concern to the students enrolled are studied. *Alberty.*

- 869 Guiding Learning Activities in the Secondary School** G 3  
(841) W. 3 cl.  
Prereq.: 862 and 864.

An advanced course dealing with basic principles and generalized techniques involved in developing, organizing, and evaluating learning activities. *Duncan.*

- 870 Practicum in Curriculum and Supervision** G 4  
(885) A. 1 cl., lab. arr.  
Prereq.: Master's degree and 861.  
Not open to students with credit for 868.

A study of the literature and methods of curriculum development and supervision of instruction in a field setting. *Frazier.*

- 871 Practicum in Curriculum and Supervision** G 4  
(886) W. 1 cl., lab. arr.  
Prereq.: Master's degree, 861 and 870.  
Continuation of 870. *Frymier.*

- 872 Practicum in Curriculum and Supervision** G 4  
(887) Sp. 1 cl., lab. arr.  
Prereq.: Master's degree, 861 and 871.  
Continuation of 871. *Klohr.*

- 873 Problems of Secondary School Supervision and Curriculum Development** G 3  
(865) A. 3 cl.  
Prereq.: 860.  
Not open to students with credit for 868.

An advanced course in supervision and curriculum development emphasizing the problem involved in initiating and conducting change in the secondary school curriculum. *Frymier.*

- 874 Introduction to Guidance Services** G 3  
(750) A, W, Sp. 3 cl.  
Prereq.: 455.

Background and purposes of guidance services; techniques used in studying the individual; informational services; counseling service; placement and follow-up; developing a guidance program. *Peters, Riccio.*

- 875 Group Processes** G 3  
(752) A, W, Sp. 3 cl.  
Prereq.: 455.

Theories, issues, trends, and supervised practice. *Kemp.*

- 876 Organization and Administration of Guidance Services** G 3  
(754) A, W, Sp. 3 cl.  
Prereq.: 874 or equiv.

The selection, organization, and presentation of guidance materials, including analyses of types of organization, methods of initiating a guidance program, and types of in-service programs. *Riccio.*

- 877 Guidance Appraisal Techniques** G 3  
(755A) A. 3 cl.  
Prereq.: 874.

Basic concepts and techniques in the appraisal of the individual. Non-Standardized Methods. *Kemp.*

- 878 Guidance Appraisal Techniques** G 3  
(755B) W. 3 cl.  
Prereq.: 874.

Basic concepts and techniques in the appraisal of the individual. Standardized Methods. *Kemp.*

- 879 Educational and Vocational Guidance** G 5  
(756) A, W, Sp. 3 cl., 1 2-hr. lab.  
Prereq.: 874.

Theories, instruments, resources for educational and vocational guidance of elementary and secondary students including an analysis of post-secondary school educational opportunities. *Peters.*

- 880 Guidance Practices in the Elementary School** G 3  
W. 3 cl.  
Prereq.: 874.

The application of guidance concepts and services to the elementary school situation.

**881 Practicum in School Guidance G 3**  
**Work***A, W, Sp. 2 2-hr. cl., 2 to 4-hr. lab.**Prereq.: 875, 877, 878, 879, Psychol. 882 and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Emphasis on practical experience in counseling and working with the supporting guidance service including:

- a. Introduction to high school counseling.
- b. Supervised practice in high school counseling.
- c. Supervised field experience in the high school.
- d. Group procedures practicum.
- e. Group counseling practicum.

**899 Interdepartmental Seminar G 1-5**  
**A.***(See under Interdepartmental Seminars)**Hack.***911 Conceptions of Mind in G 3**  
**Educational Theory***(757) A. 3 cl.**Prereq.: 637 or equiv.*

A study of the doctrines of the mind that have exercised a determining influence upon educational theory and practice.

**912 The Thinking Process in Its G 3**  
**Educational Bearings***(758) W. 3 cl.**Prereq.: 637 or equiv.*

A study of the thinking process for the purpose of tracing its implication for educational theory and classroom practice.

**913 Modern Trends in Educational G 3**  
**Philosophy***(759) A. 3 cl.**Prereq.: 637 or equiv.*

A discussion of alternative philosophies and their implications for current educational theory. *Kircher.*

**914 Moral and Religious Ideals in G 3**  
**Education***(760) Sp. 3 cl.**Prereq.: 637 or equiv.*

An inquiry into the role of religion in public education practices, court decision, and controversial proposals. *Kircher.*

**915 Social Philosophies and Their G 3**  
**Educational Bearings***(809) Sp. 3 cl.**Prereq.: 637.*

A study of social philosophies in terms of their significance for educational procedures and programs. *Jewett.*

**916 The Educational Philosophy of G 3**  
**John Dewey***(810) Sp. 3 cl.**Prereq.: 912 or equiv.*

A systematic study of the writings of John Dewey in their bearings upon educational theory and practice. *Kircher.*

**917 Comparative Philosophy of G 3**  
**Education***(859) W. 3 cl.**Prereq.: 912 or 913 or equiv.*

A study of alternative philosophies of education and the speculative development of their implications for educational practice. *Kircher.*

**925 Seminars in Education G 2-5***(800) A, W, Sp.*

Students, with permission of advisers, may register for more than one section of 925 or for the same section two or more times.

**Research Problems in:****.09 Speech Education***A. Service Course Programs. Brooks.**A. Speech Curriculum—New Trends. Lewis.**W. Organizational Communication. Brooks. W. Instructional and Production Facilities. Lewis.**(Auditoriums, Classrooms, Equipment and Sources)**Sp. Communications Research Methods. Knowler.***.10 Elementary Education***A. Modern Mathematics. Harding.**A. Language Arts. Huck, King.**A. For Masters Students of Ramsey, Tomlinson.**W. General Elementary. Tomlinson.**Sp. Social Studies and Science. Ramsey, Tomlinson.**Sp. For Masters Students of Huck, King.***.21 Industrial Arts Education***A, W, Sp.***.22 Trade and Industrial Education***W.**Reese.***.23 Business Education***Sw.**Hanna.***.25 Teaching of English***A, W, Sp.**Eberhart, Zidonia.***.26 Teaching of Mathematics***A, W, Sp.**Crosswhite, Lazar, Trimble.***.27 Teaching of Sciences***A, W, Sp.**Howe, Richardson, Schlessinger, Shrum.***.28 Teaching of Social Studies***A, W, Sp.**Jewett, Muessig, and Staff.***.29 Distributive Education***A.**Logan.***.33 Adult Education***Sp.***.34 Guidance***A, W, Sp.**Kemp, Peters, Riccio.***.35 Higher Education***W, Sp.**Burnett, Frankie.***.40 History of Education and Comparative Education***A, W, Sp.**Mehl, Sanders, Sutton.*



- 41 Philosophy of Education** G 3  
A, W, Sp.  
*Maccia and Staff.*
- 43 Radio and Television Education** G 3  
A, W, Sp.  
*Tyler.*
- 44 Educational Administration** G 3  
A, W, Sp.  
*Anderson, Laughlin, and Staff.*
- 45 Teaching of Foreign Languages** G 3  
A, Sp.  
*Allen, Pimaleur.*
- 46 Audio-Visual Communication** G 3  
A.  
*Dale.*
- 47 Exceptional Children** G 3  
W.  
*W.*
- 48 Educational Research** G 3  
A, W, Sp.  
*Curriculum and Instruction*
- 49 Curriculum and Instruction** G 3  
A, W.  
*Alberty, Duncan, Klohr.*
- 50 Educational Change** G 3  
W.  
*Blanke.*
- 927 History of the Universities** G 3  
(711) W, Sp. 3 cl.  
The university as an institution through ten centuries; patterns of development in different countries; German, English, American contributions to the idea of the American university. *Sutton.*
- 928 The History of Educational Thought: Ancient and Medieval** G 3  
(775) A. 3 cl.  
*Prereq.: 632 or 636.*  
Study and analysis of the major educational theories of the ancient and medieval periods including the educational writings of Plato, Aristotle, and St. Augustine. *Mehl.*
- 929 The History of Educational Thought: Modern** G 3  
(776) Sp. 3 cl.  
*Prereq.: 632 or 636.*  
Study of the major educational theories since 1500 including Montaigne, Milton, Locke, and Rousseau and their influence on contemporary educational theory and practice. *Mehl.*
- 931 General Methods in Adult Education** G 3  
(774A) Sp. 3 cl.  
*Prereq.: Permission of instructor.*  
The psychological and sociological factors affecting adults as learners; the uses and adaptations of various methods and techniques for teaching adults.
- 932 Discussion Methods in Adult Education** G 3  
(774B) W. 3 cl.  
*Prereq.: Permission of instructor.*  
The roundtable, forum, panel symposium, and other forms of discussion as applied to adult groups; laboratory practice; clinical analysis of individual difficulties.
- 934 Organization and Administration of Adult Education Programs** G 3  
(898) A. 3 cl.  
*Prereq.: 672 and permission of instructor.*  
A study of the community agencies with adult education programs; how new programs may be developed in terms of needs which are not being met.
- 939 The Community Junior College** G 3  
(832) A, W. 2 cl.  
Origin and development of the community college, including an evaluation of general, college-parallel, terminal, and adult education programs in public and private institutions. *Burnett, Frankie.*
- 940 Administration of Higher Education I** G 3  
(845) A, Sp. 2 2-hr. cl.  
Purposes and scope of higher education; patterns of general control; theories of administration, allocation of function, and coordination in higher education. *Burnett.*
- 941 Theories and Curricula of Higher Education** G 5  
(848) A, W. 2 2-hr. cl., 1 hr. arr.  
A study of current theories of general education of representative and experimental college programs in the United States. *Kircher.*
- 942 Administration of Higher Education II** G 3  
(854) W. 1 2-hr. cl., 1 hr. arr.  
*Prereq.: 940.*  
Principles and problems of control, allocation of function, coordination, financial support, business administration, and evaluation in higher education, including graduate and professional education. *Frankie.*
- 943 Interaction of the Student and the College Environment** G 3  
(855) A. 2 cl.  
A focus on the nature of the college environment, entering student, academic procedures, student performance, and student culture for those planning careers in college student personnel work. *Burnett.*
- 944 Curriculum in Teacher Education** G 5  
(850) A, Sp. 2 2-hr. cl., 1 hr. arr.  
*Prereq.: 860 or permission of instructor.*  
Bases and development of curriculum in teacher education (process and product); comparative study of programs for the preparation of teachers; analysis of the implications of current research for programs of teacher education.
- 946 Introduction to School Administration** G 3  
(727) A, W, Sp. 1 3-hr. cl.  
*Prereq.: 585 or 587 or equiv.*  
The nature of educational administration—its purposes, the tasks, situational factors, processes, qualifications for the job—personnel assessment, preparation, continued growth; professional opportunity and challenge. *Anderson, Hack, Larmee, Staub.*

**947 Introduction to the Principalship G 3**(808) *A, W, Sp. 1 3-hr. cl.**Prereq.: 946.*

General introduction to the elementary and secondary school principalships. Stressed are administrative processes and the principal's role in team administration. *Anderson, Laughlin.*

**948 The Elementary School Principalship G 3**(825) *W, Sp. 3 cl.**Prereq.: 946.*

Emphasis is given to the elementary-school principal's role in providing leadership in policy-making, personnel matters, public relations, research, and business management. *Anderson, Staub.*

**949 Administrative Problems of the High School Principal G 2 or 3**(844) *W. 1 3-hr. cl.*

An advanced course in educational administration dealing with problems and issues in the organization and administration of the secondary school. *Laughlin.*

**950 Administrative Problems of Beginning Superintendents G 3**(870) *Sp. 3 cl.**Prereq.: 946.*

Emphasis on such problems as school-community relations, finance, school facilities, staff personnel, pupil personnel, instruction, and organization. *Larmee.*

**951 Administrative Problems of the City School System G 3**(871) *W. 1 3-hr. cl.**Prereq.: 946.*

A study of problems of educational administration in the complex city school system with emphasis on solution of educational problems caused by the unique demographic characteristics of the city. *Larmee.*

**952 Legal Aspects of School Administration G 3**(823) *W, Sp. 3 cl.**Prereq.: 946 or equiv.*

A study of statutory and case law, legal principles and provisions, as related to educational administration district, personnel, finance, curriculum, contracts, property, liability, and organization. *Staub.*

**953 School Community Relations G 3**(853) *A. 3 cl.**Prereq.: 946 or equiv.*

Principles and practice in developing and maintaining appropriate school community relationships; professional vs. lay roles; institutional relationships; opinion analysis, communication processes; and decision-making patterns. *Staub.*

**954 Administration of Pupil Personnel G 3**(872) *A. 1 3-hr. cl.**Prereq.: 946.*

The organization and administration of pupil personnel services—legal phases of the program, policy development and staffing relationships are considered. *Laughlin.*

**955 Staff Personnel Administration G 3**(873) *A, Sp. 1 3-hr. cl.**Prereq.: 946.*

A study of personnel administration in educational institutions—recruitment, orientation, appraisal, in-service training, promotion, certification, dismissal, personnel policies, salary provisions, welfare and collective negotiation. *Larmee.*

**956 School Finance G 3**(875) *A, Sp. 1 3-hr. cl.**Prereq.: 946.*

General school finance problems; finance and organization; sources of school support; variations in financial ability and effort; state-local finance plans; federal role. *Hack.*

**957 Business Administration of Schools G 3**(876) *W. 1 3-hr. cl.**Prereq.: 946.*

Function of business administration in schools; administrative relationships; personnel; budgetmaking; procuring revenue, financial outlay, and accounting; managing plant facilities and supplies; payroll, transportation. *Hack.*

**958 School Plant Planning G 3**(880) *W. 1 2-hr. cl., 1-hr. arr.**Prereq.: 946 or equiv.*

Problems and techniques in determining educational facility needs, evaluating facilities, planning for new construction and remodeling, utilizing specialized personnel; related legal and financial aspects. *Conrad, Wohlers.*

**959 Practicum in Educational Administration G 4**(836) *A. 1 cl., lab. arr.**Prereq.: Master's degree, 946.*

*Two yrs. teaching experience or equiv. and permission of instructor.*

A study of the literature and methods of school surveys, as a basis for the investigation of practical problems in school administration and supervision. *Anderson.*

**960 Practicum in Educational Administration G 4**(837) *W. 1 cl., lab. arr.**Prereq.: 959.*Continuation of 959. *Hack.***961 Practicum in Educational Administration G 4**(838) *Sp. 1 cl., lab. arr.**Prereq.: 960.*Continuation of 960. *Staub.***964 Experimental Design in Education G 4***W. 3 cl., 1 1-hr. lab.**Prereq.: Introductory inferential statistics or permission of instructor.*

Experimental design will be studied with emphases placed upon features most frequently encountered in educational research and upon acquisition of quantitative understandings in laboratory setting. *Norton.*

**965 Evaluation Functions and Methodology in Education G 3***Sp. 3 cl.**Prereq.: Psychol. 510 or equiv.*



The functions and methodology of evaluation relative to planned educational change, with emphasis on the relationships between data collection, analysis, reporting and relevant decision processes. *Stufflebeam.*

## 966 Research Process: Practicum in Educational Research G 3

Sm. 3 cl.

*Prereq.: Previous courses in the Basic Sequence in Educational Research Methodology or permission of instructor.*

The utilization of research strategies in the pursuit of educational problems, with emphasis upon the development, conduct, and completion of individual projects.

## 967 Research Management G 3

Sp. 3 cl.

*Prereq.: Permission of instructor.*

The use of management information systems in the planning and controlling of educational research and development projects, with particular emphasis on network planning techniques. *Cook.*

## 968 Problems in the Development of Research Projects G 3

(802) A. 3 cl.

*Prereq.: Permission of instructor.*

A discussion of conceptual, methodological and communication problems encountered in the development of research projects; faculty members engaged in project development are invited to participate. *Novak.*

## 970 The English Curriculum: Language and Composition G 3

A. 3 cl.

*Prereq.: 20 cr. hrs. in Ed. and 25 cr. hrs. in Engl.*

An evaluation of current trends and developments in linguistics and composition instruction and their relevance for the English curriculum. *Zidonis.*

## 971 The English Curriculum: Literature G 3

Sp. 3 cl.

*Prereq.: 20 cr. hrs. in Ed. plus 25 cr. hrs. in Engl.*

Critical examination of trends in the secondary school literature program, including programs for the able and the disadvantaged student, basic objectives, types of organization, techniques of developing literary appreciation. *Eberhart.*

## 993 Advanced Studies in Education G 3

(835) A, W, Sp.

*Prereq.: Graduate standing in the M.Ed. Program. Permission of instructor.*

Designed to enable candidates pursuing the Master of Education degree to demonstrate ability to attack and deal with problems independently.

- .09 Speech Education
- .10 Elementary Education
- .21 Industrial Arts Education
- .22 Trade and Industrial Education
- .23 Business Education
- .25 Teaching of English
- .26 Teaching of Mathematics
- .27 Teaching of Sciences
- .28 Teaching of Social Studies
- .29 Distributive Education
- .33 Adult Education

- .34 Guidance
- .40 History of Education and Comparative Education
- .41 Philosophy of Education
- .43 Radio and Television Education
- .44 Educational Administration
- .45 Teaching of Foreign Languages
- .46 Audio-Visual Materials of Instruction
- .47 Exceptional Children
- .48 Educational Research

## 999 Research in Education G Arr.

A, W, Sp.

Research for thesis or dissertation purposes only.

## Electrical Engineering

Office: 105 Caldwell Laboratory, 2024 Neil Avenue.

PROFESSORS †THURSTON (Chairman), †AYRES, †BOONE, †CORNETT, †COSGRIFF, †COWAN, †W. DAVIS, DREESE (Emeritus), †HSU, †KENNAUGH, KIMBERLY (Emeritus), †KO, †KOUYOUMJIAN, †KRAUS, †LEVIS, †MATHIS, †MIDDLETON, †RICHMOND, †SMITH, †WALTER, †WARREN, †WEED, †WEIMER, and †YOVITS; ADJUNCT PROFESSORS ADAWI, †TOU, and †WARFIELD; ASSOCIATE PROFESSORS †ANDERSON, †BACON, †D. DAVIS, †GILFERT, †GOTTLING, HIGGY (Emeritus), KSIENSKI, †LACKEY, †LONG, †PEAKE, and †PETERS; ASSISTANT PROFESSORS †BATOCLETTI, CAMPBELL, †COLLINS, †DEJONG, †DEVORE, †ERDMAN, †FENTON, HEMAMI, HODGE, HUTCHINS, †KOOZEKANANI, †SWARTZ, and WILLIAMS; and INSTRUCTORS.

## 500 Electrical Engineering U 4

(642) A, W, Sp. 3 cl., 3-hr lab.

*Prereq.: Physics 233, Math. 254.*

Not open to students majoring in Elec. E. or Eng. Physics.

Introduction to circuit analysis; circuit analysis concepts and their extension to mechanical and thermal systems by analogy. Electrical instruments and measurements. *Cowan, Weed.*

## 501 Circuit Theory I U G 3 or 4

(612) A, W. 3 or 4 cl.

*Prereq.: Math. 254, Physics 233, concur. 510, Math. 255.*

Not for graduate credit to students majoring in Elec. E.

Basic principles of linear circuit theory; network equations, phasor algebra, resonance and the analysis of transient and steady state behavior of simple circuits.

## 502 Circuit Theory II U G 3 or 4

(613) W, Sp. 3 or 4 cl.

*Prereq.: 501.*

Network equivalence, poles and zeroes, Fourier series, matrix notation and general node and mesh equations.

## 503 Circuit Theory III U G 4

(614) A, Sp. 4 cl.

*Prereq.: 502.*

Network theorems, polyphase circuits, magnetic circuits, power spectra, sampling theorem, Fourier integral.

- 504 Circuit Theory IV** U G 4  
 (615) A, W. 4 cl.  
*Prereq.: 503, concur. 620, Math. 414.*  
*Not for graduate credit to students majoring in Elec. E.*

Frequency selective networks, modulation, Laplace transform, two-ports, filters.

- 507 Electrical Laboratory I** U 2  
 (662) A, W. 1 cl., 1 3-hr lab.  
*Concur: 501 or 510. Prereq.: Math. 254 and Physics 233.*

Characteristics and capabilities of electrical instruments; measurement of resistance, capacitance, inductance and impedance at audio frequencies; two-dimensional field plotting. *Gulfert.*

- 508 Electrical Laboratory II** U 2  
 (663) W, Sp. 1 cl., 1 3-hr lab.  
*Prereq.: 507, concur. 502.*

A laboratory study of electric circuits including resonant circuits, current and voltage loci, coupled circuits, network theorems, and circuit transients. *Gulfert.*

- 510 Field Theory I** U G 3 or 4  
 (617) A, W. 3 or 4 cl.  
*Prereq.: Physics 233, Math. 254, concur. 501.*  
*Not for graduate credit to students majoring in Elec. E.*

Vector relations, static electric fields, dielectric materials, boundary conditions, field mapping, steady electric currents and their magnetic fields, motion of charged particles.

- 511 Field Theory II** U G 3 or 4  
 (618) W, Sp. 3 or 4 cl.  
*Prereq.: 510, concur. Math. 412.*  
*Not for graduate credit to students majoring in Elec. E.*

Ferromagnetic materials, time changing electric and magnetic fields, Maxwell's equations, relations between field and circuit theory, plane waves, Poynting vector, energy relations, boundary value problems.

- 512 Transmission and Radiation** U G 3 or 4  
 (619) A, Sp. 3 or 4 cl.  
*Prereq.: 511.*  
*Not for graduate credit to students majoring in Elec. E.*

General transmission theory, infinite line, terminated line, impedance transformation, rectangular waveguides, group and phase velocity, impedance of waveguides, simple antenna systems.

- 517 Electrical Laboratory III** U 2  
 (664) A, Sp. 1 cl., 1 3-hr lab.  
*Prereq.: 508, concur. 503 and 512.*

Transmission line parameters; attenuation, magnitude and phase of voltage and current on lines; reflected waves; waveguide characteristics and techniques; antenna patterns and impedances. *Peters.*

- 520 Electron Devices and Controls** U 4  
 (644) A, W, Sp. 3 cl., 3-hr lab.  
*Prereq.: 500.*

Theory and applications of semiconductors, transistors, photoelectric, vacuum and gas filled tubes. Study of control circuits, feedback, amplifiers, oscillators, filters, magnetic amplifiers and instrumentation. *Weed.*

- 540 Electrical Engineering** U 4  
 (643) A, W, Sp. 3 cl., 3-hr lab.  
*Prereq.: 500 or equiv.*  
*Not open to students majoring in Elec. E. or Eng. Physics.*

Electromechanical devices; an introduction to the basic principles of analysis of electromechanical devices. The approach is organized to extend the circuit concepts and dynamic analysis introduced in the preceding course. *Cowan.*

- 580 Professional Aspects of Electrical Engineering** U 1  
 (504) A. 1 cl.

Employment problems of graduating seniors, professional aspects of engineering and professional societies and ethics. Discussion of employment practices. *Ayres.*

- 581 Experience in Practice** U 5  
 (625) A, W, Sp. Ten weeks of experience in practice following the 9th qtr., or 1 yr. of acceptable industrial experience before the end of the 5th yr.

Students must register and obtain complete information and forms from course supervisor. *Ayres.*

- 620 Electron Device Circuit Theory I** U G 3 or 4  
 (626) A, W. 3 or 4 cl.  
*Prereq.: 503 and 510 or equiv.*  
*Not for graduate credit to students majoring in Elec. E.*

Elementary theory of electron device terminal characteristics; large and small signal analysis of electron devices as circuit components; applications to rectification, switching, and to amplification.

- 621 Electron Device Circuit Theory II** U G 3 or 4  
 (627) W, Sp. 3 or 4 cl.  
*Prereq.: 504 and 620.*  
*Not for graduate credit to students majoring in Elec. E.*

Multistage amplifier coupling; broadbanding; feedback analysis and applications; power amplifiers; Class B and C large signal analysis.

- 622 Electron Device Circuit Theory III** U G 4  
 (628) A, Sp. 4 cl.  
*Prereq.: 621.*  
*Not for graduate credit to students majoring in Elec. E.*

Oscillators, modulators, demodulators, AM and FM; switching networks utilizing vacuum, gas and solid-state devices; control circuits; system applications.

- 627 Electrical Laboratory IV** U 2  
 (665) A, W. 1 cl., 1 3-hr lab.  
*Prereq.: 508, concur. 504 and 620.*

Determination of terminal characteristics of vacuum, gaseous, and solid state electron devices; non-sinusoidal wave form frequency analysis; power supplies, three-phase rectifiers, single stage amplifiers. *Campbell.*

- 628 Electrical Laboratory VI** U 2  
 (667) A, Sp. 1 cl., 1 3-hr lab.  
*Prereq.: 627, concur. 622.*

Amplitude modulation; demodulation of a modulated wave; production of shaped waveforms; switching and control circuit applications; design and evaluation of a single-frequency oscillator; filters. *Erdman.*



**630 Introduction to Electron U G 3 or 4  
Devices***W, Sp. 3 or 4 cl.**Prereq.: 620 and Physics 551 or equiv.**Not for graduate credit for students majoring in Elec. E.*

Potential distribution in vacuum devices; carrier motion in fields; photoelectric, thermionic, secondary, field emission; space-charge flow, parameters, transit time, gaseous conduction, plasma properties in electron devices.

**631 Electron Device Physical U G 3 or 4  
Theory I***(768) A, Sp. 3 or 4 cl.**Prereq.: 512, 621, 630, Eng. Mech. 510 or equiv.*

Structure of the solid state; junction diode and transistor theory and models; fabrication techniques; space charge layer, field effect, photo-effect in semiconductors.

**632 Electron Device Physical U G 3 or 4  
Theory II***(769) A, Sp. 3 or 4 cl.**Prereq.: 631.*

Thermionic, thermoelectric, photo-voltaic, magnetohydrodynamic energy conversion; piezoelectric, ferroelectric and ferromagnetic devices; space-charge waves and microwave device theory.

**640 Electrical Energy U G 4  
Conversion I***(650) A, Sp. 3 cl., 1 3-hr. lab.**Prereq.: 511; concur. 503.**Not for graduate credit for students majoring in Elec. E.*

Properties and theory of magnetic circuits as applied to electromechanical energy conversion. Transformers, non-linear magnetic devices. Introduction to rotating machine analysis.

**641 Electrical Energy U G 3  
Conversion II***(651) A, W. 3 cl.**Prereq.: 640.**Not for graduate credit for students majoring in Elec. E.*

Field and circuit concepts of idealized rotating machines; steady and transient states; thermal transients; control machines and systems.

**642 Electrical Energy U G 3  
Conversion III***(652) W, Sp. 3 cl.**Prereq.: 641.**Not for graduate credit for students majoring in Elec. E.*

Field and circuit concepts of realistic rotating machines; generalized two-phase machines as control components; magnetic amplifiers.

**647 Electrical Laboratory V U 2***(668) W, Sp. 1 cl., 1 3-hr lab.**Concur.: 642.*

Study of characteristics of general magnetic networks and saturable-core devices; transient and steady-state performance of selected singly and multiply excited electromechanical systems. *Smith.*

**650 Introduction to Feedback U G 3 or 4  
Analysis***(716) A, W. 3 or 4 cl.**Prereq.: 504 and 622, or 520 and Math. 255 with permission of instructor.*

Feedback systems, block diagrams and signal flow graphs, stability criteria, frequency response and pole-zero analysis; application of feedback to amplifiers and control systems; non-linear consideration.

**657 Electrical Laboratory VII U 2***(669) A, W. 1 cl., 1 3-hr. lab.**Concur.: 650.*

Laboratory study of feedback amplifiers, control systems and their components, operational amplifiers, and analog computers. *Bacon.*

**660 Logic Circuit Theory U G 3***(740) A, W. 3 cl.**Prereq.: 520 or 622 with permission of instructor.*

Synthesis of switching circuits using Boolean, Algebra, coding, sequential switching circuits. *Cosgriff, Lackey.*

**684 Economics and Organization U G 4  
of the Electrical Industry***(741) W, Sp. 4 cl.**Prereq.: 503 or 540.**Not for graduate credit to students majoring in Elec. E.*

Principles of engineering economy and financial analysis applied to electrical industry in its principal divisions; power supply, communications, manufacturing and merchandising. *Ayres.*

**693 Individual Studies in U G Arr.  
Electrical Engineering***A, W, Sp.**Repeatable to a maximum of 18 cr. hrs.***694 Group Studies in U G Arr.  
Electrical Engineering***A, W, Sp.**Repeatable to a maximum of 18 cr. hrs.***700 Advanced Circuits U G 3***(707) A. 3 cl.**Prereq.: 621.*

Introduction to network synthesis. *W. Davis.*

**701 Communication Theory U G 3***(743) W. 3 cl.**Prereq.: 622.*

Theory of communication, information content, frequency spectra, noise, methods of modulation, modulators, and demodulators. *W. Davis.*

**702 Communications Systems U G 3***(747) Sp. 3 cl.**Prereq.: 701.*

A study of the synthesis of amplitude and frequency modulated communication systems, with emphasis on transmitters and receivers. *W. Davis.*

**703 Space Communications U G 3**  
*Sp. 3 cl.*  
*Prereq.: 701.*

A study of space communication systems. Long-distance transmission, wave propagation, and system considerations. *D. Davis, Peake.*

**707 Communications Laboratory I U G 2**  
*(744) W. 1 cl., 1 3-hr lab.*  
*Prereq.: 622 and 628.*

Theory and laboratory study of non-linear amplifiers and oscillators, modulators and detectors. *D. Davis, Gilsfert.*

**708 Communications Laboratory II U G 2**  
*(748) Sp. 1 cl., 1 3-hr lab.*  
*Prereq.: 707.*

Laboratory study of communication systems. *D. Davis, Gilsfert.*

**710 Microwave Circuits U G 3**  
*(739) A. 3 cl.*  
*Prereq.: 512, concur. 718 or permission of instructor.*

Advanced waveguides, waveguide devices, amplifiers, generators and detection devices; special microwave techniques. *D. Davis.*

**711 Radiation from Antennas U G 3**  
*(718) W. 3 cl.*  
*Prereq.: 512.*

Dipole, loop, aperture, reflector, lens, surface wave and other antennas; array theory; radiation resistance, directivity and input impedance. *Kraus.*

**712 Microwave Optics U G 3**  
*Sp. 3 cl.*  
*Prereq.: 512 or permission of instructor.*

Geometrical optics, physical optics, aperture radiation integrals, minimum range requirements, stationary phase, sidelobes, backlobes, aperture blocking, radar echo area, geometrical theory of diffraction, gyrotropic media. *Peters.*

**713 Elements of Radio Wave Propagation U G 3**  
*(756) W. 3 cl.*  
*Prereq.: 512.*

Practical calculations and procedures for predicting refraction and reflection by a plane or spherical earth; tropospheric, ionospheric, and scatter propagation. *Levia.*

**714 Microwave Electronics U G 3**  
*(788) W. 3 cl.*  
*Prereq.: 512, 631.*

Interactions between electromagnetic fields and electron beams; transit time effects, velocity modulation phenomena, and space charge waves; klystrons, magnetrons, and traveling wave devices. *Cornetet.*

**715 Radio Astronomy Instrumentation U G 3**  
*(784) A. 3 cl.*  
*Prereq.: 504, 512, and 621, or Physics 632 and 734, or permission of instructor.*

Theory and design of radio telescope antennas and receivers for radio astronomy and space research. *Ko, Kraus.*

**717 Antenna Laboratory U G 1**  
*(719) W. 1 3-hr. lab.*  
*Prereq.: 517, concur. 711.*

Measurements and interpretation of antenna field patterns, impedances, gains, and current distribution. *Kraus.*

**718 Microwave Circuits Laboratory U G 1**  
*(724) A. 1 3-hr. lab.*  
*Prereq.: 512 and 517, concur. 710 or permission of instructor.*

Measurement of field and power distribution in waveguides; impedances, components and microwave generator properties. *D. Davis.*

**720 Circuit Theory of Solid State Devices U G 3**  
*(763) W, Sp.*  
*Prereq.: 622 and 632 or equiv.*

Advanced circuit theory of solid state devices. *Boone, Thurston.*

**721 Advanced Electronic Circuits U G 3**  
*(781) Sp.*  
*Prereq.: 622.*

Integrating and differentiating circuits; counting circuits; timing circuits; pulse circuits; wave-forming and wave-shaping circuits. *W. Davis.*

**727 Solid State Device Laboratory U G 2**  
*(764) W. 1 cl., 1 3-hr. lab.*  
*Prereq.: 628, concur. 720.*

Laboratory study of solid state devices and materials. *Boone, Thurston.*

**728 Advanced Electronic Circuits Laboratory U G 2**  
*(782) Sp.*  
*Prereq.: 622 and 628, concur. 721.*

Laboratory study of integrating and differentiating circuits; counting circuits; timing circuits; pulse circuits wave-forming and wave-shaping circuits. *W. Davis.*

**732 Quantum Electron Devices U G 4**  
*(787) A, Sp. 4 cl.*  
*Prereq.: 631, Physics 661 and Math. 412 or equiv.*

Electronic energy levels in quantum electron devices; application to energy transitions in crystalline and gaseous media; applications to semiconductors, masers, and lasers. *Hsu.*

**733 Nonlinear Interactions of Fields U G 3**  
*(789) W. 3 cl.*  
*Prereq.: 512 and 631.*

Coupled mode theory of lumped circuit and traveling wave parametric interactions, Hamiltonian treatment of nonlinear interactions, nonlinear optics, stimulated Raman and Brillouin scatterings, phonon-phonon interactions. *Hsu.*

**740 Introduction to Electric Power Systems U G 3**  
*(790) A. 3 cl.*  
*Prereq.: 512 and 642.*

System ability and related calculations of transmission line and apparatus constants. *Ayres, Smith.*



- 741 Electric Power Networks** U G 3  
(792) W. 3 cl.  
Prereq.: 512 and 642.

Fault calculation, network analysis, relaying studies, and traveling wave analysis applied to electric power system problems. Ayres, Smith.

- 742 Problems in Electric Power Systems** U G 3  
(794) Sp. 3 cl.  
Prereq.: 642.

Analog and digital computer applications to design and operation. Recent developments in engineering techniques to meet current changes in systems and apparatus. Ayres, Smith.

- 747 High Voltage Laboratory** U G 2  
(791) W. 1 cl. 1 3-hr. lab.  
Prereq.: 512 and 642.

A laboratory study of high voltage insulation. Ayres, Smith.

- 748 Power System Laboratory** U G 2  
(793) Sp. 1 cl., 1 3-hr. lab.  
Prereq.: 647, 741.

A laboratory study of power system engineering problems. Ayres, Smith.

- 751 Open Cycle Control and Instrumentation** U G 3  
(728) W. 3 cl.  
Prereq.: 641 and concur. 650, or 520 and 540 with permission of instructor.

Industrial electronic control and instrumentation using semiconductor, vacuum and gaseous electron devices; timing, pulse counting circuits, trigger methods; programmed sequence control; radio frequency heating; X-ray. Weed.

- 752 Feedback Control Systems** U G 3  
(733) W. 3 cl.  
Prereq.: 642 and 650, or 540 with permission of instructor, Math. 255 or 556.

Application of feedback principles to control systems, system equations; performance criteria; compensation, carrier systems, multi-variable systems. Weimer.

- 753 Magnetic Amplifiers** U G 3  
(731) Sp. 3 cl.  
Prereq.: 642 and 650, or 520 and 540, with permission of instructor.

Theory and transient analysis of self-saturating magnetic amplifiers, system control and regulation, memory methods. Weed.

- 754 Advanced Control Systems** U G 3  
(738) Sp. 3 cl.  
Prereq.: 752.

Practical control systems with non-ideal components; non-linear systems, state variables. Weed.

- 757 Control Systems Laboratory I** U G 2  
(725) W. 1 cl., 1 3-hr. lab.  
Concur.: 751 or 752.

Experiments chosen by student interest from the course content of open cycle control and instrumentation and feedback control systems. Weed, Weimer.

- 758 Control Systems Laboratory II** U G 2  
(734) Sp. 1 cl., 1 3-hr. lab.  
Concur. 753 or 754.  
May be taken without 757.

Experiments chosen by student interest from the course content of advanced control systems and magnetic amplifiers. Weed, Weimer.

- 760 Theory and Design of Digital Computers** U G 3  
(742) W, Sp. 3 cl.  
Prereq.: 660.

Number systems, introduction to computer programming, design of arithmetic units, counters and digital control systems, use of redundant codes and redundant equipment. Cosgriff.

- 761 Advanced Logic** U G 3  
Sp. 3 cl.  
Prereq.: 760.

A review of two-level logic; introduction to multilevel logic and applications; neuron logic; linear sequential networks; reliable circuits with unreliable modules; introduction to coding theory. Lackey.

- 762 Information Theory** U G 3  
W. 3 cl.  
Prereq.: 660.

Introduction to information theory; codes, sources, transmission over noisy channels. D. Davis, Lackey.

- 767 Digital Computer Laboratory** U G 2  
(723) Sp. 1 cl., 1 3-hr. lab.  
Concur.: 760.

Laboratory study of counting, arithmetic and digital circuits. Cosgriff.

- 794 Advance Studies in Electrical Engineering** U G Arr.  
A, W, Sp.  
Repeatable to a maximum of 18 cr. hrs.

- 800 Transients in Linear Systems** G 3  
(815) A, W. 3 cl.  
Prereq.: 620.

Writing system equations for electrical, mechanical, and mixed systems with lumped parameters; use of Fourier, Laplace and Z-transform methods. Weimer.

- 801 State Variable Methods in Linear Systems** G 3  
A, W. 3 cl.  
Prereq.: 800.

Elements of linear transformation and matrix theory; state equations and vectors; differential time-invariant and time-variable systems; discrete systems; observability and Lyapunov stability. Hemami.

- 802 Network Synthesis I** G 3  
(830) Sp. 3 cl.  
Prereq.: 800 and Math. 552.

Modern theory of network synthesis with applications to advanced design of filters, equalizers, and compensators. W. Davis, Warren.

**803 Network Synthesis II G 3**

(831) A. 3 cl.

Prereq.: 802.

Continuation of 802. W. Davis, Warren.

**804 Communication Theory I G 3**

A, W. 3 cl.

Prereq.: 504 or permission of instructor.

The application of Fourier series and Fourier integral methods of the design and analysis of communication circuits and signals.

**805 Communication Theory II G 3**

W, Sp. 3 cl.

Prereq.: 804 and Math. 520.

The application of statistical methods to problems in communication systems including signal representation, modulation, detection and filtering.

**806 Communication Theory III G 3**

Sp. 3 cl.

Prereq.: 805.

Topics selected from the communication applications of statistical decision-theory, signal representation, optimal filtering and other matters of current interest. Warren.

**808 Theory and Analysis of Magnetic Amplifiers G 3**

(860) W. 3 cl.

Prereq.: 622, 800, or equiv.

Theory of magnetic materials. Steady state and transient analysis of magnetic amplifiers; suppressed and free harmonics; power gain; resistive, inductive and capacitive load. Weed.

**809 Analysis of Magnetic Amplifiers Memory Devices and Components G 3**

(861) Sp. 3 cl.

Prereq.: 808 and 850, or equiv.

The analysis of magnetic amplifiers with extrinsic and intrinsic feedbacks; a-c, d-c, or combination control; switching properties; and applications. Weed.

**810 Fundamentals of Electromagnetic Theory G 3**

(832) A, W. 3 cl.

Prereq.: 512 or equiv.

Solution of Maxwell's equations by scalar, vector, and hertzian potentials; plane waves in dielectric, conducting, and anisotropic media; polarization, boundary value problems, radiation, and scattering. Kouyoumjian, Kraus.

**811 Waveguides and Resonators G 3**

(850) W. 3 cl.

Prereq.: 810.

General theory of waveguides, modes, discontinuities, losses, cavities, and power considerations. Peake.

**812 Theory of Microwave Components G 3**

(853) Sp. 3 cl.

Prereq.: 811.

General circuit theory of one port and multi-ports; impedance and scattering concepts; reciprocity in microwave circuits; impedance transformations; directional devices; non-reciprocal devices, non-linear elements. Peake.

**813 Radiation and Radiating Systems G 3**

(851) Sp. 3 cl.

Prereq.: 810.

Radiation theory; dipole, linear, loop, helical, biconical, nad aperture antennas; beam shaping, aperture distribution, self and mutual impedance, microwave optics; radio telescope, antenna temperature. Kraus.

**814 Advanced Antenna Theory I G 3**

Su. 3 cl.

Prereq.: 810.

Field theorems; boundary-value problems; solution of the integral equations for scattering problems; radiation integrals; far-field criteria; antenna theorems; mathematical and numerical techniques. Richmond.

**815 Advanced Antenna Theory II G 3**

A. 3 cl.

Prereq.: 810 or equiv.

Analysis and synthesis of linear and planar radiating systems; excitation and propagation of surface and leaky waves; modulated traveling-wave structures; backward-wave antennas. Walter.

**816 Propagation of Electromagnetic Waves G 3**

(852) Sp. 3 cl.

Prereq.: 713 and 810.

Advanced study of transmission and reception of radio waves in the presence of the earth and its atmosphere; tropospheric, ionospheric, and scatter propagation. Levis.

**817 Advanced Electromagnetic Theory I G 3**

A. 3 cl.

Prereq.: 810 or equiv.

Representation of fields by vector wave functions and dyadic Green's functions; Huygen's principle for electromagnetic waves; application to antenna and scattering problems. Kouyoumjian.

**818 Advanced Electromagnetic Theory II G 3**

W. 3 cl.

Prereq.: 817.

Asymptotic methods and the geometrical theory of diffraction; integral equations and variational methods; propagation through inhomogenous media and anisotropic media; surface waves. Kouyoumjian.

**819 Advanced Electromagnetic Theory III G 3**

Sp. 3 cl.

Prereq.: 817.

Application of saddle-point methods to electromagnetic problems; Fock theory for currents on curved surfaces; application of variational and perturbation techniques to electromagnetic problems. Kouyoumjian.

**820 Methods of Analysis of Interaction Between Electrons and Fields G 3**

A, Sp. 3 cl.

Prereq.: 631 and 810 or permission of instructor.

Electron beams; energy transfer; induced current; space charge waves; traveling and backward wave interactions; coupled-mode analysis; crossedfield interactions. Cornetet.



**821 Theory of Electron Guns and Electron Beams G 3**

(842) W. 3 cl.

Prereq.: 631 and 810 or permission of instructor.

Electron optical principles; effect of thermal velocities; effect of space charge; electron guns; periodic focusing. Cornetel.

**822 Velocity Variation Electron Tubes G 3**

(845) W. 3 cl.

Prereq.: 820.

Transit time effects at high frequencies; velocity variation and theory of bunching; klystrons and related devices; harmonic generation. Hoone, Cornetel.

**823 Electron Interaction with Traveling Waves G 3**

(846) Sp. 3 cl.

Prereq.: 822.

Theory of electron interaction with traveling waves; applications to traveling-wave tubes; carcinotrons, magnetrons, and linear accelerators. D. Davis.

**829 Plasma Dynamics G 3**

(844) W. 3 cl.

Prereq.: 631 or 810, or equiv.

Motion of ions and electrons, ionization processes, electromagnetic phenomena in plasma, electron beams in plasma. Ko, Peters.

**830 Solid State Electron Devices I G 3**

(854) A. 3 cl.

Prereq.: 622, 732, concur. 632, Math. 412, or equiv.

Introduction to solid state electron devices; conduction mechanisms; magnetic effects; electrical properties of imperfections; dynamics of single crystals at high temperatures; control of impurity distribution. Thurston.

**831 Solid State Electron Devices II G 3**

(855) W. 3 cl.

Prereq.: 830, concur. Physics 727.

Energy band theory of semiconductors, statistical distributions of carriers, non-equilibrium processes and carrier lifetime theory of mobility.

**832 Solid State Electron Devices III G 3**

(856) Sp. 3 cl.

Prereq.: 831.

Transport theory, high-injection and high-field phenomena, galvanomagnetic and thermoelectric effects, applications to special semiconductor devices.

**833 Theory of Semiconductor Junction Devices G 3**

Sp. 3 cl.

Prereq.: 632.

Theory of pn junctions, diodes, transistors and related devices.

**834 Quantum Electron Devices G 3**

(857) A. 3 cl.

Prereq.: 732, 810, Math. 601 and Physics 728 or equiv.

Analysis of energy of atomic gases as applied to gas lasers; crystal structure of solid-state maser and laser materials.

**835 Quantum Electron Devices G 3**

(858) W. 3 cl.

Prereq.: 834.

Quantum mechanical and statistical analysis of energy levels in solids and of microwave and optical energy conversions in masers and lasers.

**836 Quantum Electron Devices G 3**

(859) Sp. 3 cl.

Prereq.: 835.

Theory and design of masers and lasers; current research in quantum electron devices.

**840 Electromechanical Systems G 3**

(833) A. 3 cl.

Prereq. or concur.: 800.

Application of the methods of electric circuit analysis to mechanical, acoustical, electromechanical and electroacoustical systems. Cowan.

**850 Theory and Design of Feedback Control Systems G 3**

(847) W. 3 cl.

Prereq.: 650 and 800, or permission of instructor.

Linear feedback theory, signal-flow graphs, return difference, stability studies with parameter variation, independent control of transmission and sensitivity functions, multi-variable systems, approximation methods. Weimer.

**851 Synthesis of Linear Feedback Control Systems G 3**

(848) Sp. 3 cl.

Prereq.: 850.

Sampled-data systems, the Z-transform, digital compensation; synthesis of systems with statistical inputs and constraints; advanced topics. Weimer.

**853 Analysis of Non-Linear Systems G 3**

(834) Sp. 3 cl.

Prereq.: 800 and 804.

An advanced study of methods of analysis of non-linear systems with applications in the field of electric circuit theory and control systems. Cosgriff.

**854 Modern Control Theory I G 3**

W. 3 cl.

Prereq.: 800 and 801, or permission of the instructor.

State-space analysis, transition matrix; stability considerations, controllability and observability; time optimal control, iteration method, variational calculus, two-point boundary value problem, multidimensional control process. Tou.

**855 Modern Control Theory II G 3**

Sp. 3 cl.

Prereq.: 854.

Maximum principle, dynamic programming, optimal control problems; stochastic and adaptive control process, computer control theory, identification and estimation problems, gradient techniques. Tou.

- 860 Information Science I** G 3  
*A. 3 cl.*  
*Prereq.: 761 and Math. 520 or permission of instructor.*

Statistical decision theory, discriminant functions, pattern recognition, parametric training, non-parametric training, divergent information, separability; perceptions, feature extraction, stochastic approximation, method of potential functions. *Tou.*

- 863 Advanced Coding Theory I** G 3  
*A. 3 cl.*  
*Prereq.: 761.*

The coding problem; linear codes and their implementation; cyclic codes. *Lackey, Tou.*

- 864 Advanced Coding Theory II** G 3  
*W. 3 cl.*  
*Prereq.: 863.*

Special codes including Bose-Chaudhuri and Fire codes; burst error correction; recurrent codes checking arithmetic operations; new developments in coding theory. *Lackey, Tou.*

- 865 Advanced Sequential Logic** G 3  
*A. 3 cl.*  
*Prereq.: 660 or permission of the instructor.*

Conversion from machine description to circuit description; simplification techniques based upon lattices, and matrix and group treatments. Machine isomorphisms, homomorphisms, and regular expressions. *Cosgriff.*

#### Radio Astronomy Theory I

(See under Astron. 862.)

#### Radio Astronomy Theory II

(See under Astron. 863.)

- 880 Advanced Studies in Electrical Engineering** G Arr.  
*A, W, Sp.*  
*Repeatable to a maximum of 18 cr. hrs.*

- 881 Seminar in Electrical Engineering** G 1-3  
*A, W, Sp. 1-3 cl.*  
*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 18 cr. hrs.*

- a. Research Topics in Electromagnetics.  
*W. Kennaugh.*
- b. Solid State Electron Devices.  
*Sp. Thurston.*
- c. Information Theory.  
*W, Sp. Saltzer.*
- d. Nonlinear Quantum Electronics.  
*Sp. Hsu.*
- e. Recent Developments in Quantum Electronics.  
*A, W, Sp. Hsu.*
- f. Electrodynamics of Moving Media  
*W. Kouyoumjian.*

- 895 Interdepartmental Seminar in Radio Astronomy** G 1-5  
*A, W, Sp.*  
*(See under Interdepartmental Seminars.)*

- 899 Interdepartmental Seminar** G 1-5  
*A, W, Sp.*  
*(See under Interdepartmental Seminars.)*

- 910 Advanced Antenna Theory III** G 3  
*W. 3 cl.*  
*Prereq.: 804, 813 or equiv.*

Time modulated antennas, synthetic aperture antennas, logical switching antennas, nonlinear processing antennas, and correlation arrays; the effects of signal-processing on beamwidth, gain, and multiple-target response. *Ko, Walter.*

- 999 Research in Electrical Engineering** G Arr.  
*(950) A, W, Sp.*  
*Research for thesis or dissertation purposes only.*

## Engineering Graphics

*Office: 240 Hitchcock Hall, 2070 Neil Avenue.*

PROFESSORS YARRINGTON (Chairman), COOPER (Emeritus), FIELD (Emeritus), PAFFENBARGER (Emeritus), PARKINSON, SHUPE, and WATKINS; ASSOCIATE PROFESSORS HANG, KEARNS, LaRUE, and REED; ASSISTANT PROFESSORS BALDWIN, BROWN, DENNING, DEVEREAUX, and ROMEO; and INSTRUCTORS.

- 100 Elementary Engineering Drawing** U 4  
*(400) A, W, Sp. 4 2-hr. cl. and lab.*

Use of instruments, projection drawing, auxiliary views, sections, size descriptions, pictorial drawing. *Reed.*

- 102 Principles of Engineering Drawing** U 4  
*(402) W, Sp. 4 2-hr. cl. and lab.*  
*Prereq.: 100 or permission of instructor.*

Orthographic Projection: Selected elements of descriptive geometry as theoretical bases for the graphical solution of technical problems and the development of other systems of projection; slide rules. *Romeo.*

- 111 Engineering Graphics I** U 3  
*A, W, Sp. 3 cl. and 3 1-hr. labs.*  
*Prereq.: One unit of high school geometry or Math. 116 or 150.*  
*Not open to students with credit in Engr. Gr. (440).*

A study of graphical language of engineering; applications of orthographic projection to three-dimensional relationships. *Hang.*

- 112 Engineering Graphics II** U 3  
*A, W, Sp. 3 cl. and 3 1-hr. labs.*  
*Prereq.: 111.*  
*Not open to students with credit in Engr. Gr. (442).*

A study of graphical methods for formulating, analyzing and representing engineering concepts; graphical computation; comparison of graphical procedures and equivalent mathematical and numerical methods. *Watkins.*



**129 Engineering Drawings in Technical Communication U 3**(439) *W. 3 2-hr. cl. and lab.**Prereq.: 2nd yr. standing.**Not open to students with credit in 102, 112, or (442).*

Fundamentals of engineering drawing with emphasis on reading and understanding. Orthographic shape description, conventional practices, threaded fasteners, dimensions and tolerances, working drawings, slide rule. *Parkinson.*

**194 Special Problems in Engineering Graphics U 1-5***W, Sp.**Prereq.: Permission of instructor.*

Selected problems of an experimental nature stressing the systematic approach to engineering graphics problems and embracing appropriate modes of attack.

**199 Engineering Graphics (Honors) U 5**(499) *A. 5 2-hr. cl. and lab.**Prereq.: Honors admission to Pre-Engineering.*

The graphic language of engineering and its application to the development and representation of engineering concepts. Precise graphic equivalents of selected mathematical and numerical methods.

**204 Technical Drawing U 4**(504) *A. 4 2-hr. cl. and lab.**Prereq.: 102, 112, or (442).*

Dimensioning applied to detail and assembly drawings with an introduction to limits and tolerances. Technical sketching of machine parts; representation and specifications of gears, piping and welding. *Kearns.*

**206 Structural Drawing U 4**(506) *W. 4 2-hr. cl. and lab.**Prereq.: 204, 112, or (442).*

Introduction to structural drafting. Includes steel and frame structures; riveted, bolted and welded connections; terminology and erection requirements. *Kearns.*

**208 Production Illustration U 4**(508) *Sp. 4 2-hr. cl. and lab.**Prereq.: 206 or permission of instructor.*

Commercial and industrial applications of pictorial representation. Instrument drafting techniques, rendering, templates, automated drafting and reproduction methods. *Baldwin.*

**237 Graphic Presentation U 5**(537) *A. 5 2-hr. cl. and lab.**Prereq.: 2nd yr. standing.*

Representation of three-dimensional subjects by precise graphics; orthographic and pictorial; shades and shadows. *Parkinson.*

**755 Chemical Plant Design U G 3***Sp. 2 3-hr. cl. and lab.**Prereq.: Chem. E. 5th yr. standing and (442); concur. Chem. E. 764.*

Sketching and preliminary layout for industrial chemical plants, including design and selection factors for equipment and process auxiliaries. *Parkinson.*

**Engineering Mechanics**

*Office: 209 Boyd Laboratory, 155 West Woodruff Avenue. PROFESSORS †WEST (Chairman), †FOLK, †GRAHAM, †LEISSA, OTT (Emeritus), and POWELL (Emeritus); ASSOCIATE PROFESSORS †KORDA and TUCKER (Emeritus); ASSISTANT PROFESSORS BUSSMAN, †CLAUSEN, FRETWELL, †GRAFF, POPELAR, ROBINS, SEGERLIND, †STEVENS, and †WU; and INSTRUCTORS.*

**200 Digital Computer Programming: Engineering Applications U 3**(650) *A, W, Sp. 2 cl., 3 1-hr. lab.**Prereq.: Math. 153.*

Algebraic language programming. Processing of programs using facilities of the Numerical Computation Laboratory. Engineering applications.

**201 Applied Mechanics U 4**(511) *A. 3 cl., 2 1-hr. labs.**Prereq.: Math. 151.*

Statics of force systems by analytical and graphical methods; centroids and moment of inertia; stresses and strains of structural members; combined stresses by Mohr's Circle; columns; deflections and statically indeterminate beams by area moments.

**202 Applied Mechanics U 4**(512) *W. 3 cl., 2 1-hr. labs.**Prereq.: 201.*

Continuation of 201.

**203 Applied Mechanics U 4**(513) *Sp. 3 cl., 2 1-hr. labs.**Prereq.: 202.*

Continuation of 202.

**210 Statics U 5**(513) *A, W, Sp. 5 cl.**Prereq.: Physics 231 and/or concur. Math. 254.*

Resultant and equilibrium of coplanar and noncoplanar force systems; trusses, frames, and connected bodies; friction; centroids and moment of inertia of masses and areas.

**410 Dynamics U 3**(607) *A, W, Sp. 3 cl.**Prereq.: 210.**Not open to students with credit for 510.*

Linear and angular motion from constant and variable forces; connected bodies; impulses; momentum; energy.

**420 Strength of Materials U 5**(602) *A, W, Sp. 4 cl., 2 1-hr. labs.**Prereq.: 210.*

Normal and shearing stress and strain; energy; torsion; flexural stress; beam deflections; combined stress, theories of failure; columns.

**510 Dynamics U G 5**(617) *W, Sp. 5 cl.**Prereq.: 420 or concur., Math. 255 or 556.*

Dynamics of particles and rigid bodies; impulses, momentum, work, energy; three dimensional vector acceleration; conservative systems; single degree of freedom vibration analysis.

**521 Stress Analysis I U G 3**

(605) W, Sp. 3 cl.

Prereq.: 420.

Statically indeterminate and variable section beams by area moments; bending of non-symmetrical section; energy of bending and shear; beam limit design; torsion of open and closed non-circular sections.

**522 Stress Analysis II U G 3**

(606) A, Sp. 3 cl.

Prereq.: 420.

Failure theories: Mohr's circle for strain rosettes; thick cylinders; non-circular torsion; curved beams; Castigliano's theorem.

**621 Advanced Strength of Materials U G 3**

(712) W. 3 cl.

Prereq.: 420 and/or concur. Math. 412 or 557.

Beams on elastic foundations; beam columns; deflection curves by trigonometric series; limitations of superposition; suspension systems; large deflections; rings loaded perpendicular to their plane.

**624 Elastic Energy Theory U G 3**

(716) A. 3 cl.

Prereq.: 521 and one of: Civil E. 632, 530, Aero-Astro. E. (710).

Deformations and stress in frames, beams, bents, rings, arches, and columns; redundant beams and frames; combined direct and torsional stresses; shear deformations.

**627 Experimental Methods in Mechanics U G 3**

(703) A, W, Sp. 2 cl., 2 lab. hrs.

Prereq.: 420.

Static and dynamic strain analysis by electrical gages; grid techniques; brittle coatings; analogies; reflective photoelasticity in normal and oblique incidence; motion measurements.

**660 Fluid Dynamics U G 5**

A. 5 cl.

Prereq.: 410 and Math. 414.

Basic equations and concepts of fluid flow; two and three dimensional inviscid flow problems; conformal transformations; vortex motion; viscous flow; boundary layer effects; compressible flow.

**694 Special Group Studies in Engineering Mechanics U G 2-5**

(799) A, W, Sp.

Prereq.: 13 cr. hrs. of 400 level in Eng. Mech. and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

The student must register for specific problems in the areas indicated below, and may register for more than one at a time.

- a. Experimental Stress Analysis
- b. Dynamics.
- c. Fluid Mechanics
- d. Applied Elasticity
- e. Strength of Materials
- f. Vibrations
- g. Plasticity
- h. Plates and Shells
- i. Continuous Media

**700 Methods of Engineering Analysis U G 3**

(750) W. 3 cl.

Prereq.: 10 cr. hrs. 700 level in Eng. Mech. and Math. 412.

Comprehensive study of techniques and devices for solving equations arising in engineering mechanics.

**711 Advanced Engineering Dynamics U G 3**

(717) W. 3 cl.

Prereq.: 410 and Math. 255 or 556.

Three dimensional vector statics; kinematics and kinetics of particles and rigid bodies; energy momentum, stability; application of Lagrange's equations to machinery, vehicles, ballistics; gyroscope.

**731 Vibrations of Discrete Systems U G 3**

(707) A. 3 cl.

Prereq.: 410 and Math. 255 or 556.

Free and forced vibrations of mechanical systems having lumped mass and elasticity; normal coordinates; dissipative system; stability; simple engineering applications.

**732 Non-Linear Vibrations U G 3**

(808) Sp. 3 cl.

Prereq.: 731 and Math. 552 or equiv.

Vibrations of damped and undamped systems with non-linear restoring forces; self-sustained oscillations; application of Hill's equation of stability of non-linear oscillations.

**740 Applied Elasticity I U G 3**

A. 3 cl.

Prereq.: 521 or 522, and/or concur. Math. 412.

Classical problems in elasticity; St-Venant torsion and bending theory; plane problems in rectangular and polar coordinates; axisymmetric problems; thermoelasticity.

**741 Applied Elasticity II U G 3**

W. scl.

A continuation of 740.

**748 Photoelasticity U G 3**

(704) A, W, Sp. 2 cl., 2 lab. hrs.

Prereq.: 420.

Stress analysis using polarized light techniques; polariscope optics; photoelastic materials and models; two and three dimensional problems; dynamics photoelasticity, photoplasticity, thermal studies.

**751 Theory of Elastic Stability U G 3**

(715) A. 3 cl.

Prereq.: 521 or 522, Math. 255 or 556.

Buckling of bars under axial and lateral loads; effect of curvature and eccentricity; determination of critical loads by energy; tube and beam buckling.

**752 Theory of Dynamic Stability U G 3**

(718) Sp. 3 cl.

Prereq.: 731.

Study of the criteria for dynamic stability. Methods of stabilizing critical mechanical systems. Applications to space mechanics, structures, and vehicles.



**754 Theory of Thin Elastic Plates U G 3**  
(725) W. 3 cl.

*Prereq.: 521 and Math. 255 or 556.*

Pure bending of rectangular plates; thermal stresses; equations for small deflections for various edge conditions and shapes; large deflections; approximate methods.

**757 Elements of Inertial Guidance U G 3**  
**and Navigation**

(727) Sp. 3 cl.

*Prereq.: 711.*

Moment of momentum of rigid bodies; perturbing torques in the angular equations of motion of a rigid body; gyrokinematics; accelerometers; inertial platforms and surface and subsurface navigation systems; control systems dynamics; a survey of modern mathematical techniques in the study of dynamical systems.

**811†\* Analytical Dynamics G 3**

(817) Sp. 3 cl.

*Prereq.: 711.*

Lagrange's equations of motion for particles and rigid bodies; impulse; small oscillations; non-holonomic and dissipative systems. Hamiltonian systems; applications to intricate engineering problems.

**812\* Energy Principles in Mechanics G 3**

(830) A. 3 cl.

*Prereq.: 521 or 522 to 624 and Math. 255.*

Theoretical development of energy principles in mechanics; strain energy and complementary energy with related minimal principles; applications to problems in elasticity, dynamics, vibrations.

**831 Vibrations of Continuous Systems G 3**

(807) W. 3 cl.

*Prereq.: 731 and/or concur. Math. 412 or 557.*

Equations of motions for strings, membranes, prismatical bars, and plates for various boundary conditions; approximate methods for complicated shapes; wave propagation in elastic media.

**832 Vibrations Laboratory G 3**

Sp. 2 2-hr. lab.

*Prereq.: 831.*

Experiments in vibrations of discrete systems, beams, plates, and shells; propagation of stress waves; material properties by dynamic measurements.

**833 Elastic Wave Propagation G 3**

Sp. 3 cl.

*Prereq.: 831.*

Dispersion and group velocity; waves in extended media; propagation and reflection in half space; Lamb problem; waves in plates and rods by exact theory; scattering of waves.

**835 Random Vibrations G 3**

(827) A. 3 cl.

*Prereq.: 831.*

Description of random processes; statistical properties of the response of mechanical systems; optimization of systems subjected to random inputs; instrumentation.

**840 Elementary Theory of Continuous Media G 3**

(735) Sp. 3 cl.

*Prereq.: 420, 410, Math. 255.*

Equilibrium, compatibility, and strain displacement relationships for a general continuum; constitutive equations for problems of elasticity, fluid dynamics and inelasticity.

**843 Advanced Elasticity G 3**

(840) W. 3 cl.

*Prereq.: 741.*

Complex variable methods; anisotropic elasticity; three-dimensional elasticity; mixed boundary value problems; thermoelasticity.

**845†\* Non-Linear Theory of Elasticity G 5**

Sp. 5 cl.

*Prereq.: 741 and/or concur. Math. 701.*

Finite displacements; finite strain; non-linear interaction of stress states.

**847 Theory of Plasticity G 3**

(820) W. 3 cl.

*Prereq.: 840, Math. 412.*

Plastic range stress-strain relations; elasto-plastic behavior of beams, trusses; torsion of prismatic bars; plane strain; shear lines; limit analysis.

**854 Plates and Shallow Shells G 3**

(824) A, Sp. 3 cl.

*Prereq.: 754.*

Advanced methods for the analysis of bending in thin, elastic plates having arbitrary shapes, loading, and boundary conditions; bending theory of shallow shells and problem solutions.

**855 Theory of Thin Elastic Shells G 3**

(825) W. 3 cl.

*Prereq.: 754, (813).*

Equation of deformation of an arbitrary shell; thermal effects; exact and approximate solutions; Rayleigh's bending theory; membranes; shells of variable thickness, orthotropic shells.

**860†\* Classical Hydrodynamics G 3**

(810) Sp. 3 cl.

*Prereq.: 711, Math. 412, 413, 414 or equiv.*

Basic equations and concepts of inviscid fluid flow, solutions to two and three dimensional problems; conformal transformations; approximate methods.

**864 Theory of Viscoelasticity G 3**

W. 3 cl.

*Prereq.: 840 and/or concur. 740.*

Basic concepts of time dependent inelastic behavior; viscoelastic constitutive laws; correspondence principles; quasi-static and dynamic problems.

**881 Advanced Theoretical Mechanics G 2-5**

(801) A, W, Sp.

*Prereq.: 521, 410, (610) and Math. 556 or equiv. and evidence of sufficient background in area of study chosen, and permission of chairman.*

*Repeatable to a maximum of 15 cr. hrs.*

The student must register for specific subject in the areas indicated below and may register for more than one at a time.

- a. Advanced Experimental Methods
- b. Advanced Dynamics
- c. Hydrodynamics and Fluid Mechanics
- e. Applied Elasticity
- f. Strength of Materials
- g. Vibrations
- h. Plasticity
- j. Plates and Shells
- k. Continuous Media.

**889 Seminar in Engineering Mechanics**     **G 1***A, W, Sp. 1 cl.**Repeatable to a maximum of 6 cr. hrs.*

Lectures and discussions covering a wide range of topics, presented by staff, graduate students and guest speakers.

**999 Research in Engineering Mechanics**     **G Arr.***(950) A, W, Sp.*

Research for thesis or dissertation purposes only.

**Engineering Survey Courses****101 Elements of Engineering**     **U 1***(401) A. 1 cl.**Prereq.: Engr. 1st yr. standing.*

The nature of the engineering profession, the work of the professional engineer, and unique characteristics of the various branches of engineering.

**102 Elements of Engineering**     **U 1***(402) Sp. 1 cl.**Prereq.: 101.*

Continuation of 101.

**501† Engineering Concepts and Methods**     **U G 5***(601) Su. 3 cl., 2 2-hr. lab.**Prereq.: Chem. 102 or equiv., Math 151, Physics 112 and 113.**Not open to students in the College of Engineering.*

The science of professional engineering; methodology of engineering analysis and design and its relation to mathematics and physical sciences.

**English***Office: 421 Denney Hall, 164 West 17th Avenue.*

PROFESSORS †KUHN (Chairman), †ALTICK, †BRUCOLI, CORBETT, DERBY (Emeritus), †ESTRICH, FULLINGTON (Emeritus), †HUGHEY, †LOGAN, PERCIVAL (Emeritus), †ROBBINS, †UTLEY, WALLEY (Emeritus), and †WILSON; ASSOCIATE PROFESSORS BLICKLE, †CANZONERI, †GABEL, †GRIGSBY, †MARKELS, †MAURER, SNOW (Emeritus), †STEVENS, †VARANDYAN, †WEBBER, and †WHEELER; ASSISTANT PROFESSORS †BEJA, †BRUNS, †COX, CRAIG (Emeritus), DASHER, †DETLEF, DUMBLE (Emeritus), ENGLAND, †GIBSON, GOOD, GRAHAM, †JONES, KABEALO, KATZ, KINCAID, †MARESCA, †MARTIN, †MUSTE, †PARKS, PASSE, †SHAPIRO, †STEGNER, and †WOODSON; INSTRUCTORS ADAMS, BROSCHE, EDWARDS, HOCH, JULYAN, LORD (Emeritus), and SCHORR.

**ENGLISH FOR FOREIGN STUDENTS**

Course credit may not be counted toward graduation.

**071 General English for Foreign Students**     **U 5***(406) A, W, Sp.*Review of English structure for foreign students. Proceeds from basic oral aural patterns to their application in writing. *Adams, Director.***072 Advanced English for Foreign Students**     **U 5***(407) A, W, Sp.*Develops academic and social effectiveness in the use of advanced patterns in written and spoken English. *Adams, Director.***073 Special Problems in English for Foreign Students**     **U 3***(408) A, W, Sp.*Attention is given to the special academic problems of foreign students. Concentrated work on idiomatic structure and diction in writing reports, themes, examinations, and theses. *Adams, Director.***ENGLISH COMPOSITION**

No prerequisite except as established by testing and course sequence.

**101 Composition and Reading**     **U 3***(416) A, W, Sp.**Not open to students with credit for 301.*Training in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. *Corbett, Director.***102 Composition and Reading**     **U 3***(417) A, W, Sp.**Prereq.: 101.**Not open to students with credit for 104 or 301.*Continued training in expository writing with emphasis on the logical elements in exposition. *Corbett, Director.***103 Composition and Reading**     **U 3***(418) A, W, Sp.**Prereq.: 102.**Not open to students with credit for 105 or 301.*Continued training in expository writing, approached specifically through the study of imaginative literature. *Corbett, Director.***104 Composition and Reading**     **U 3***(419) A.**Prereq.: Em credit for 101.**Not open to students with credit for 102 or 301.**Designed for proficiency students only, as a substitute for 102.*Training in expository writing, with emphasis on the logical elements in exposition. *Corbett, Director.***105 Composition and Reading**     **U 3***(420) W.**Prereq.: 104 or Em credit for 102.**Not open to students with credit for 103 or 301.*Continued training in expository writing, approached specifically through the study of imaginative literature. *Corbett, Director.***195 Freshman Honors Seminar**     **U 3***W, Sp. 3 cl.**Prereq.: 102 or 104; cumulative point-hour ratio of 3.0 or better, with 3.5 or better in Engl. and permission of department.**Substitute for 103 or 105.*



Studies in thematically related literary works; discussion and guided writing on basic questions about the nature of literature; topic varies quarterly.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are English 103 or 105.

**220 Introduction to Shakespeare** U 5  
(550) A, W, Sp.

*Not open to students with credit for 262. Students majoring in Engl. in the College of Arts and Sciences should elect 520 instead of 220.*

Intensive study of selected plays of Shakespeare designed to give an understanding of drama as theatrical art and as an interpretation of fundamental human experience. *R. Jones, Director.*

**240 Masters of Modern Literature** U 5  
(540) A, W, Sp.

An introduction to modern poetry, drama, and fiction through the study of five or six authors: Shaw, O'Neill, Frost, Conrad, Eliot, Robinson, Forster, Yeats, and Porter. *Estrich, Director.*

**260 Introduction to Poetry** U 5  
(520) A, W, Sp.

A course designed to help students to understand and appreciate poetry through intensive study of a representative group of poems. *Wheeler, Director.*

**261 Introduction to Fiction** U 5  
(521) A, W, Sp.

Intensive study of a number of short stories and novels to acquaint the general student with some of the important themes and techniques of fiction. *Beja, Director.*

**262 Introduction to Drama** U 5  
(555) A, W.

*Not open to students with credit for 220.*

A critical analysis of selected dramatic masterpieces from Greek antiquity to the present, designed to clarify the nature and major achievements of western dramatic art. *Graham, Robbins, Stevens.*

**265 Narrative Writing** U 5  
(507) A, W.

*Prereq.: Permission of instructor.*

Guided practice in the writing of short fiction. *Canzoneri, Schorr, Stegner.*

**266 Verse Writing** U 5  
(508) W.

*Prereq.: Permission of instructor.*

The technique of writing verse. The students will write in various forms and meters and study the works of established poets as models. *Parks.*

**280† The English Bible** U 5  
(529) Sp.

A study of the King James version of the Bible with respect to literary questions, historical development, and religious concepts. *Gabel.*

**290 Masterpieces of American Literature** U 5  
(510) A, W, Sp.

*Not open to students with credit for (511), 551, 552, 553.*

A critical study of some major American writers chosen from among the following: Poe, Hawthorne, Emerson, Thoreau, Melville, Whitman, Dickinson, Twain, James, Frost, Eliot, Faulkner and Hemingway. *Brucoli, Director.*

**293 Masterpieces of English Literature** U 5

(563) A, W, Sp.

Designed to lead to an appreciative understanding of some great poetry and prose written before 1675; emphasis upon Beowulf, Chaucer, Spenser, Milton, and selected lyrics. *Webber, Director.*

**294 Masterpieces of English Literature** U 5

(564) A, W, Sp.

Selections of prose and poetry will be drawn from works of major British writers from 1675 to 1900. *Martin, Director.*

**296 Sophomore Honors Seminar** U 5  
A. 5 cl.

*Prereq.: Cumulative point-hour ratio of 3.00 or better, with 3.5 or better in Engl., and permission of Department.*

Studies in the relationship of works of literature to their general intellectual contexts, involving such topics as Deism, Marxism, Primitivism, Freudian psychology. Topic varies quarterly.

**299 English Honors Pro-seminar** U 5  
Sp. 5 cl.

*Prereq.: Cumulative point-hour ratio or 3.00 or better, with 3.5 or better in Engl. and permission of Department.*

An introduction to the materials and methods of literary study through intensive reading in one major English or American author. Topic varies quarterly.

**301 Informative Writing** U 5  
(505) A, W, Sp.

*Prereq.: 3rd yr. standing and 103 or equiv.*

*Not open to students with credit for 302.*

Intensive advanced training in the art of informative writing. *Passe, Director.*

**302 Critical Writing** U 5  
(506) A, W, Sp.

*Prereq.: 103 or equiv., 3rd yr. standing. Engl. majors only.*

*Not open to students with credit for 301.*

Intensive practice in writing various kinds of analyses of literary texts. *Gibson, Director.*

**305 Technical Writing** U 3  
(519) A, W, Sp. 2 cl., 1 hr. conf.

*Prereq.: 3rd yr. standing in the Bachelor of Science curricula.*

Training in practical writing for industry, business, and research, with emphasis on the special requirements and techniques for the professional report. *Blickle, Director.*

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500

These courses may provide graduate credit only in departments other than English. Prerequisites: 15 hrs. of courses in English on the 200 level, or 10 hrs. in English and 10 in specified allied departments.

**513 Introduction to Medieval Literature U G 5**(654) *W.*

The study of masterpieces from the Middle Ages, chosen for their values in interpreting medieval culture as well as for their independent literary worth. *Estrich.*

**520 Shakespeare U G 5**(676) *W, Sp.*

A critical consideration of the art, personality, and achievement of Shakespeare in the light of Renaissance and modern significance. *Webber.*

**522 Early Seventeenth Century Literature U G 5**(671) *A, Sp.*

A study of the lyric modes of Jonson and Donne, the principal achievements in English literary prose, and the works of John Milton. *Robbins, Webber.*

**531 The Age of Wit and Satire U G 5**(635) *W.*

The skeptical mind of the Early Enlightenment as shown in lyric and satiric verse, essays, and drama, from Dryden to Pope. *Maurer.*

**535 Literature of the Eighteenth Century U G 5**(636) *A, Sp.*

The ideas and artistry of the Age of Reason as reflected in the work of major figures: Swift, Pope, Fielding, Sterne, Boswell, Johnson, Blake. *Gibson.*

**540 Romantic Poetry U G 5**(641) *W.*

English literary and intellectual romanticism as seen in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, and selected critical documents of the period. *Logan.*

**541 Victorian Poetry U G 5**(642) *A, Sp.*

Readings in the poetry of Tennyson, Browning, Arnold, Swinburne, Rossetti, Meredith, Hopkins, and Hardy, as seen against the background of Victorian ideas and literary taste. *Martin, Kincaid.*

**551 The American Renaissance in Literature U G 5**(609) *A, Sp.*

*The readings of this course do not duplicate those of 290.*

An introduction to the major American writers of the mid-nineteenth century: Poe, Hawthorne, Melville, Emerson, Thoreau, Whitman. *Woodson.*

**552 American Literature, 1865-1914 U G 5**(610) *W.*

Studies in fiction and poetry emphasizing such major figures as Twain, Howells, James, Dickinson, Robinson, Crane, Dreiser, and Willa Cather. *Markels.*

**553 Twentieth Century American Writers U G 5**(615) *A, Sp.*

A study of the development of American literature after World War I, with emphasis on the major poets and novelists. *Beja, Muete.*

**565 The Writing Laboratory U G 5**(643) *W. 3 cl., conf.*

*Prereq.: Permission of instructor.*

Detailed analysis in conference and class discussion of work presented by students. Six novels are discussed as types in modern writing. *Stegner.*

**570 English Usage U G 5**(625) *A, W, Sp.*

*Prereq.: The general prerequisites for 500 courses as listed above, or Jour. 641 or 601.*

Usage and stylistic variety in written and spoken English, for students interested in writing and teaching. *Adams, Kabealo, Stevens.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

These courses may provide graduate credit in all departments. Prerequisites: 15 hrs. of courses in English on the 500 level, or 10 hrs. in English and 10 hrs. on the 300-500 level in specified allied departments.

**615 Introduction to Chaucer U G 5**(653) *A, Sp.*

A close study of *Troilus and Criseyde* and *The Canterbury Tales* as introduction to the artist and his period. *Detlef, Estrich.*

**621 The English Renaissance U G 5**(674) *W.*

A study of Tudor prose and poetry as they exemplify literary art and as they reflect the creative and inquiring temper of the age. *Coz, Gabel.*

**624 English Drama: Medieval and Renaissance U G 5**(677) *A.*

*Prereq.: 220 or 262 or equiv.*

A study of English popular drama from its origin to 1642, with special emphasis upon the evolution of dramatic concepts and theatrical art. *Robbins.*

**634 English Drama: Restoration and Eighteenth Century U G 5**(678) *Sp.*

*Prereq.: 220 or 262 or equiv.*

A study of English drama from 1660 to 1800: Restoration heroic drama and wit comedy, eighteenth century sentimental drama, the comedy of Goldsmith and Sheridan. *Wilson.*

**641 The Nineteenth Century English Novel U G 5**(656) *Sp.*

Readings in a group of major novelists, such as Austen, Dickens, Thackeray, and others, with special emphasis upon social and humanistic values. *Logan, Shapiro.*

**642 Nineteenth Century Prose U G 5**(640) *A.*

Selections from the principal romantic and Victorian non-fictional prose writers, read both as literary art and as documents of contemporary thought. *Bruna.*

**643 Twentieth Century British Writers U G 5**(614) *W.*

A study of the development of British literature from the end of the nineteenth century to the present, with emphasis on the major poets and novelists. *Beja, Eder.*



**649 Modern Drama U G 5**  
(670) W.

An historical and critical examination of the major developments, personalities, and achievements in the drama of Europe and America since the advent of Ibsen. *Graham.*

**665 A Writer's Approach to Fiction U G 5**  
(616) Sp.

*Prereq.: 265 or equiv. or permission of instructor.*

The writing and analysis of fiction. Although the emphasis is upon student writing, there will be reading and discussion of the works of contemporary writers. *Stegner.*

**667 Playwriting U G 5**  
(648) A.

*Prereq. or concur.: One of the following: 520, 624, or 649.*

Elementary laboratory course in playwriting. Methods of play analysis with attention to dramatic technique. An historical consideration of the major forms of drama. *Canzoneri.*

**670† Folklore U G 5**  
(620) W.

A critical examination of some of the outstanding English and American folksongs and international folk tales. Lectures and class discussions will be supplemented by recordings.

**671 Structure of English U G 5**  
(626) Sp.

An investigation of the linguistic structure of modern English. *Stevens.*

**672 History of the English Language U G 5**  
(627) W.

*Prereq.: The general prerequisites for 600 courses as listed above, or Jour. 641 or 601.*

A study of the historical development of the English language and the internal and external influences which have determined its characteristics. *Gardner.*

**676 History of Literary Criticism U G 5**  
(621) A, W.

Intensive study of the basic texts in literary criticism from Plato to T. S. Eliot. *Wheeler.*

**680 Literary and Cultural Heritage U G 5**  
**of the Middle East**

(689) A.

An introduction to Assyro-Babylonian, Arabic, and Persian literature in their historical and cultural settings. *Varandyan.*

**693 Individual Studies in English U G 1-5**  
(701) A, W, Sp.

*Prereq.: Senior standing and permission of the Department Graduate Committee.*

With approval of participating faculty member and Departmental Graduate Committee, students may register for individual directed study under this number for work not normally offered in courses.

**699 Senior Seminar and Tutorial U 5**  
(690) A, W, Sp.

*Prereq.: Engl. majors in their last qtr.*

A reading course designed to unify the student's knowledge of English and American literature and to clarify his understanding of problems of interpretation and criticism. *Shapiro, Director.*

**783 Honors Course U G 3-5**  
(705) A, W, Sp.

*Prereq.: 4th yr. standing; the record of A in at least half of his Engl. courses and an average of B in all of his courses; the permission of the professor under whose supervision the work is to be completed. Open only to candidates for distinction in Engl. who have in their junior year completed with high grades a program approved by the Committee on Honors.*

*Repeatable to a maximum of 15 cr. hrs.*

A program of reading arranged for each student, with individual conferences, reports, and honors thesis. *Grigaby, Director.*

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800

Prerequisites: 30 hrs. of courses in English or 20 hrs. in English and 25 hrs. in specified allied disciplines.

**810\* Introduction to Old English G 5**  
**Language and Literature**

(749) A. 5 cl.

The reading of Old English prose with special attention to the language and to cultural backgrounds. *Stevens.*

**811†\* Old English Poetry G 5**  
(751) Sp.

*Prereq.: 810 or equiv.*

A critical reading of the major Old English poems, form, content, and style. *Estrich.*

**812\* Beowulf G 5**  
(754) A.

*Prereq.: 811 or equiv.*

A close study of the text of *Beowulf* and its background. *Stevens.*

**813\* Introduction to Middle English G 5**  
**Language and Literature**

(746) W.

A study, with some cultural background, of important Middle English writings, in their original form. *Detlef.*

**814\* Studies in Early English G 5**  
**Literature**

(747) Sp.

*Prereq.: 811, 813, or 815 or equiv.*

A detailed and critical study of a medieval author or topic, exclusive of Chaucer. *Stevens.*

**815\* Studies in Chaucer G 5**  
(757) Su.

A critical study of some aspect of Chaucer's work in depth. *Detlef.*

**820 Shakespeare G 5**  
(776) A, Sp.

An intensive consideration of selected problems in the scholarly study of Shakespeare. *Gabel.*

**821\* Studies in Renaissance Prose G 5**  
(772) *W.*

The evolution of literary prose from Moore to Milton as seen in representative works which are related critically to rhetorical theory and significant cultural forces. *Gabel, Webber.*

**822\* Studies in Renaissance and Early Seventeenth Century Poetry G 5**(771) *A.*

A close study of significant verse of late Sixteenth and early Seventeenth centuries. *Wilson.*

**823\* Spenser G 5**(772) *Sp.*

A study of Spenser's poetry, its literary significance and its relation to foreign, classical, and native English poetic traditions. *Hughey.*

**830 Milton G 5**(775) *A, Sp.*

A critical study of the poetry and prose of John Milton, viewed against his social and literary background. *Robbins, Webber.*

**831 Dryden G 5**(735) *Sp.*

A detailed study of the poems, plays, and essays of John Dryden, as exemplifying the principles and practices of the Early Enlightenment. *Wilson.*

**832\* Swift G 5**(737) *A.*

An intensive critical study of Swift's work and its relation to the intellectual and political movements of the Age of Reason.

**833\* Pope G 5**(738) *W.*

Pope's poems considered formally and as representative documents of his age.

**835 Studies in the Eighteenth Century G 5**(732) *Sp.*

Intensive work in an important aspect of eighteenth century literature or thought.

**840 Studies in Romantic Poetry and Poetics G 5**(745) *Sp.*

Literary romanticism, as represented by one or more of the poets (Blake, Coleridge, Wordsworth, Byron, Shelley, Keats), in relation to contemporary intellectual and political movements. Topic varies year to year. *Logan.*

**841 Studies in Victorian Poetry G 5**(742) *W.*

The artistic values of the poetry, its place in the romantic tradition, its reflection of the contemporary intellectual and social milieu. Topic varies each year. *Altick.*

**842\* Studies in Nineteenth Century Prose G 5**(744) *A.*

Selected non-fictional prose, read as examples of literary art and as documents of the age's religious, political, social, and aesthetic thought. Topic varies from year to year. *Bruns.*

**847 Twentieth Century Poetry G 5**(727) *A, Sp.*

*Prereq.: Acquaintance with the major poets studied in 553 and 643 is assumed.*

An intensive study of a representative body of modern poetry, with emphasis on several major poets of England and America. *Grigaby.*

**848 Studies in Twentieth Century Fiction G 5**(728) *W.*

*Prereq.: Acquaintance with modern continental novelists is recommended.*

Tendencies in modern fiction as seen in the works of such major figures as Proust, Joyce, Mann, D. H. Lawrence, Virginia Woolf, Hemingway, and Faulkner. *Beja, Stegner.*

**851 Studies in the American Renaissance G 5**(708) *A.*

*Prereq.: 551 or equiv.*

An intensive study of several authors drawn from the following list: Cooper, Poe, Hawthorne, Melville, Emerson, Thoreau, Whitman.

**852 Studies in American Literature, 1865-1914 G 5**(709) *W.*

*Prereq.: 552 or equiv.*

An intensive study of several major authors of the period, including Twain and James. *Katz.*

**865 The Writing of Fiction G 5**(717) *W.*

*Prereq.: Submission of a manuscript to the instructor before enrollment. 285 and 685 are recommended.*

A course for those who have already demonstrated some proficiency in the writing of fiction. *Canzoneri.*

**871 Principles and Methods of Linguistic Analysis G 3**(702) *Su.*

*Prereq.: Permission of Director.*

The study of the principal methods of the analysis of the English language.

**872 Structural Analysis of English Expository Prose G 3**(703) *A.*

*Prereq.: Permission of the Director.*

*Corbett.*

**873 Principles and Methods of Literary Analysis G 3**(704) *Su.*

*Prereq.: Permission of the Director.*

Principles and methods of the study of English poetry, drama, and prose fiction.

**876 Studies in Critical Theory G 5**(710) *W.*

A review of theory and practice in some of the principal forms of literary analysis. *Grigaby, Wheeler.*



**877\* Linguistics and English G 5**  
(755) W.

An advanced approach to linguistics, language and culture, phonetics, the history and structure of English, and the teaching of English language and literature. *Gardner.*

**878\* Linguistics and English G 5**  
(756) Sp.

*Prereq.: 877.*

Continuation of 877.

**880 Studies in English or American Literature G 5**

(715) A, W, Sp.

*Prereq.: Permission of the Chairman of the Department Graduate Committee.*

Under this number, the Department occasionally offers an intensive course on some phase of English or American literature.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 900

Prerequisites: 15 hrs. of English on the 800 level.

**910\* Studies in the Medieval Period G 5**  
(852) Sp.

Individual research in a major aspect of Old and Middle English literature. *Utley.*

**911\* Studies in the Medieval Period G 5**  
(853) Su.

*Prereq.: 910*

Continuation of 910.

**912†\* Research in Chaucer G 5**  
(854) W.

Individual research in various aspects of medieval literature, with Chaucer as center. *Utley.*

**913\* Research in Chaucer G 5**  
(855) Sp. 5 cl.

*Prereq.: 912.*

A continuation of 912.

**920\* The English Renaissance G 5**  
(877) W.

Reading and research in non-dramatic literature of the English Renaissance. Topics may vary from year to year. *Hughey.*

**921\* The English Renaissance G 5**  
(878) Sp.

*Prereq.: 920.*

A continuation of 920.

**922†\* Studies in the Age of Shakespeare G 5**  
(875) W.

Exploration of the problems, materials, and methods relevant to a scholarly study of Shakespeare's work and cultural environment, culminating in individual research.

**923†\* Studies in the Age of Shakespeare G 5**  
(876) Sp.

*Prereq.: 922.*

Continuation of 922.

**933\* Research in the Restoration Period G 5**  
(837) A.

Individual research in Restoration literature, Dryden to Pope; oral and written reports. *Maurer.*

**934\* Research in the Restoration Period G 5**  
(838) W.

*Prereq.: 933.*

Continuation of 933.

**935†\* Studies in Eighteenth Century Literature G 5**

(835) W.

Problems in the literature and ideas of the Age of Reason. *Kuhn.*

**936†\* Studies in Eighteenth Century Literature G 5**

(836) Sp.

*Prereq.: 935.*

Continuation of 935.

**940 Studies in Nineteenth Century Literature G 5**

(842) A.

Reading and research in the literary production of the century and its intellectual and social backgrounds. Topic varies from year to year. *Altick.*

**941 Studies in Nineteenth Century Literature G 5**

(843) W.

*Prereq.: 940.*

Continuation of 940.

**950 Studies in American Literature and Cultural History G 5**

(865) W.

Individual research in problems in American literature. *Brucoli.*

**951 Studies in American Literature and Cultural History G 5**

(866) Sp.

*Prereq.: 950.*

Continuation of 950.

**980 Bibliography and Method G 5**

(880) A.

A course for the advanced graduate student in the methods and tools of literary research. *Altick.*

**982 Textual Criticism and Editing G 5**

(881) A.

*Prereq.: 980.*

Evaluation of literary editorial methods, past and present; training in skills requisite to the textual critic and scholarly editor; practice in textual editing. *Brucoli.*

**999 Research in English G Arr.**  
(950) A, W, Sp.

Research for dissertation purposes only.

## Entomology

Office: 101 Botany & Zoology Building, 1735 Neil Avenue.  
 PROFESSORS †WHARTON (Chairman), †BORROR, †BRIGGS, †DAVIDSON, DeLONG (Emeritus), DUNHAM (Emeritus), GOLEMAN, †HOLDSWORTH, KNULL (Emeritus), C. R. NEISWANDER (Emeritus), R. B. NEISWANDER (Emeritus), PETERSON (Emeritus), †ROTHENBUHLER, †SLEESMAN, STEPHEN, †VENARD, and †WEAVER; ASSOCIATE PROFESSORS BLAIR, †BRITT, †FISK, FORSYTHE, †KNÜLLE, †NIEMCZYK, †POLIVKA, †RINGS, †SHAMBAUGH, †TREECE, †TRIPLEHORN, and †VALENTINE; ASSISTANT PROFESSORS BARRY, †JOHNSTON, †STAIRS, and STILL.

### 200 General Entomology U 5

(550) A, W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: Bot. 102, Zool. 101 or equiv.

The biology and habits of insects, the use of insects in scientific research, and the interrelations of beneficial and harmful species with man. Triplehorn, Valentine.

### 361 Apiculture U 5

Sp. 3 cl., 2 2-hr. labs.

The principles of management of honeybees in the production of honey, wax, package-bees and queens and in pollinating crops of economic importance.

### 431 Insect Physiology U 5

(600) A. 3 cl., 2 2-hr. labs.

Prereq.: 200 or equiv. and Chem. 231, 232 or equiv.

The general physiology of insects and other arthropods. The laboratory will stress the use of insects to demonstrate fundamental physiological processes. Fisk.

### 460 Economic Entomology U 5

(551) A, W, Sp. 5 cl.

Prereq.: Bot. 102 and Zool. 101 or equiv.

A basic course dealing with the economic aspects, analyzing and solving of common insect problems. Davidson, Holdsworth.

### 500† Entomology for Biology Majors U G 5

(650) Su. 3 cl., 2 2-hr. labs.

Not open to students with credit for 200.

The biology, morphology, metamorphosis and habits of insects. Methods of collecting, preserving, culturing and identifying the more important families. Staff.

### 561 Horticultural Entomology U 3

(566) Sp. 3 cl.

Prereq.: 480 and 10 additional cr. hrs. 200 level or above in Entom. or Hort.

A detailed study of insects and mites attacking horticultural crops. Davidson.

### 602 Biology of the Honey Bee U G 3

(608) Sp. 3 cl.

Prereq.: 200, Biol. 630 or equiv.

The behavior, social organization, morphology, physiology, reproduction, diseases and genetics of the honey bee studied from a comparative and evolutionary viewpoint. Rothenbuhler.

### 611 Field Entomology U G 4

(670) Su. (1st Term), 3 all-day classes.

Given only at the Franz Theodore Stone Laboratory.

This course deals primarily with collecting, identification and field methods. Field trips are made to various islands of Lake Erie and the mainland.

### 612 Aquatic Entomology U G 4

(671) Su. (2nd Term), 3 all-day classes.

Prereq.: 611 or equiv.

A course designed for preparation in the teaching of biology or research on aquatic resources. Taxonomy and ecology of aquatic larvae are stressed.

Note: Required Seminar, see Zool. 880.

### 621 External Morphology of Insects U G 5

(651) A. 2 cl., 6 hrs. lab.

Prereq.: 200 or equiv.

A study of the comparative external morphology of insects with special emphasis on evolutionary trends and on taxonomic application of morphology. Borrer.

### 660 Advanced Economic Entomology U G 5

(640) A. 3 cl., 2 2-hr. labs.

Prereq.: 480 and Bot. 470 or equiv.

The principles of insect control. Field and laboratory studies will be made of major insect control problems. Davidson.

### 661 Medical Entomology U G 5

(655) Sp. 3 cl., 2 2-hr. labs.

Prereq.: Microbiol. 607 or Zool. 610 or equiv.

A consideration of the recognition characteristics, biology, and control of insects and other arthropods of importance to the health of man, livestock, and wildlife. Venard.

### 662 Principles of Insect Toxicology U G 5

(653) W. 3 cl., 2 2-hr. labs.

Prereq.: 431 or equiv.

Deals with physiochemical properties and physiological action of insecticides, miticides, and adjuvants. Methods of securing, evaluating, and presenting toxicological data are stressed. Ware.

### 670 General Acarology U G 4

A. 1 cl., 4-hr. lab.

An introduction to the morphology, development, and general biology of mites; laboratory consists of a taxonomic review of the families of Acari.

### 693 Individual Studies U G 2-5

(701) A, W, Sp.

Prereq.: Permission of instructor.

Individual work in the field of the chosen problems.

- Apiculture and biology of the honey bee. Rothenbuhler, Stephen.
- Immature insects. Britt, Valentine.
- Insects causing or transmitting diseases to animals. Holdsworth, Davidson, Venard.
- Insects causing or transmitting diseases of plants. Briggs, Davidson, Holdsworth.
- Insect control. Davidson, Ware, Holdsworth.
- Insect ecology. Borrer, Briggs, Britt, Triplehorn.
- Insect morphology. Borrer, Fisk.
- Insect physiology and toxicology. Fisk, Shambaugh, Ware.
- Insect taxonomy. Borrer, Davidson, Triplehorn, Valentine.
- Laboratory technique and rearing methods. Fisk.



- k. Insect behavior. *Fisk, Holdsworth, Rothenbuhler.*
- l. Field and Experiment Station Problems. *Davidson, Forsythe, Niemczyk, Polivka, Rings, Shambaugh, Sleesman, Treece, Ware.*
- m. Acarology. *Wharton.*
- n. Insect pathology and biological control. *Briggs.*

**694 Special Group Studies** U G 2-5  
(701) A, W, Sp.  
*Prereq.: Permission of instructor.*

Group work in the field of the chosen problem (See topics in 693).

**751\* Systematic Entomology** U G 5  
(705) W. 2 cl., 6 lab. hr.  
*Prereq.: 621.*

A survey of all orders except Diptera, Lepidoptera, and Hymenoptera, with emphasis on the determination of insects to family and beyond; collecting and preserving insects. *Borror.*

**752†\* Systematic Entomology** U G 5  
(706) W. 2 cl., 6 lab. hrs.  
*Prereq.: 621.*

Continuation of 751, covering the Diptera, Lepidoptera, and Hymenoptera. *Borror.*

**753†\* Immature Insects** U G 5  
(712) A. 1 cl., 4 2-hr. lab.  
*Prereq.: 751 and 752 or equiv. and permission of instructor.*

A survey of immature stages of insects with emphasis on the anatomy and taxonomy of holometabolous larvae. *Valentine.*

**802 Research Methods: Living Insects** G 5  
(816) Sp. 3 cl., 2 2-hr. labs.  
*Prereq.: Permission of instructor.*

Deals with current field and laboratory research methods of trapping, sampling, handling, and rearing insects; conducting life history studies; and measuring environmental factors. *Fisk.*

**821†\* Internal Morphology of Insects** G 5  
(817) Su. 2 cl., 3 2-hr. labs.  
*Prereq.: 621.*

Deals with the internal structures of insects, including anatomy, function, histology, embryology, and metamorphosis. Laboratory includes preparation of permanent microscopic slides of insect tissues. *Fisk.*

**831 Advanced Insect Physiology** G 5  
(850) W. 2 cl., 2 3-hr. labs.  
*Prereq.: 431 and Biochem. 511 and 521 or equiv.*

Topics include insect integument, water balance, excretion, digestion, nutrition, respiration, growth and metamorphosis. The project type laboratory provides experience in techniques of insect physiology. *Fisk.*

**841 Biological Control** G 5  
(814) W. 8 cl., 2-hr. lab.  
*Prereq.: Permission of instructor.*

The principles of biological control with particular reference to insects. *Briggs.*

**870\* Medical-Veterinary Acarology** G 4  
*Sp. 1 cl., 4-hr. lab.*  
*8 hrs. cl.-lab. daily (Su. 3 weeks).*

The mites associated with man, domestic animals, and wildlife, stressing their ecology and behavior in relation to transmission of viral, rickettsial, bacterial, and protozoan diseases. *Wharton.*

**871†\* Agricultural Acarology** G 4  
*Sp. 1 cl., 4-hr. lab.*  
*8 hrs. cl.-lab. daily (Su. 3 wks.).*

An intensive review of the mites associated with crops, ornamental plants, and stored food products with emphasis on taxonomy and ecology of these animals.

**896 Interdepartmental Seminar in Polar and Alpine Studies** G 1-3  
*Sp.*  
*(See under Interdepartmental Seminars)*

**897 Interdepartmental Seminar in Natural Resources** G 1  
A, W, Sp.  
*(See under Interdepartmental Seminars)*

**999 Research in Entomology** G Arr.  
(950) A, W, Sp.  
Research for thesis and dissertation purposes only.

## Fine Arts

Office: 146 Fine Arts Building, 126 North Oval Drive.  
PROFESSORS †HAUSMAN (*Director*), †BARKAN, †BOGATAY, †CHAFETZ, †CSURI, †R. GATRELL, †KAPLAN, †KING, †LITTLEFIELD, †LUDDEN, †SEVERINO, †SHERMAN, and †WOOD; ASSOCIATE PROFESSORS BAUGHMAN, †BLACK, CLIPSON, †COPE, †ECKER, †FREEMAN, †FRILEY, M. GATRELL, †HALL, †HEWETT, †KITTS, KRUMM, †MELNIKAS, †MENDEZ, MORLEY, †PATTON, and †ZIMMER; ASSISTANT PROFESSORS †BAIGELL, CHAPMAN, EFLAND, FETZER, FITZPATRICK, †GREAVES, †HATCHETT, HEBNER, KATZ, KRUEGER, McWHINNIE, MEALY, MITCHELL, RUBRIGHT, SMITH, TEMPLETON, †WALLSCHLAEGER, and WYNNE; INSTRUCTORS HERZOG, KUNIN, PETERSEN, SANDBERG, SEWELL, TETZ, and WENKLE.

**100 Field Experience** U 0  
(400) A, W, Sp.  
*Prereq.: Permission of instructor.*

A minimum of six weeks design related work experience done with the approval of the Design Faculty Committee.

**110 Historic Styles in Art** U 3  
(497) A, W, Sp. 3 cl.  
*Not open to juniors, seniors, or students with credit for 111.*

An introduction to the principal artistic styles of the Western world.

**111 Introduction to Art U 3**

(494) A, W, Sp. 3 cl.

*Not open to juniors, seniors or students with credit for 110.*

A study of meaning of visual form and imagery in architecture, sculpture, and painting.

**140 Introduction to Ceramic Art U 3**

(484) A, W, Sp. 1 cl., 6 lab. hrs.

An introduction to pottery making. Laboratory practice in building pottery by hand, with short lectures giving a broad survey of the ceramic arts.

**170 Drawing and Fine Arts Orientation U 5**

(421) A, Sp. 5 2-hr. lab. plus 1 cl. in A. Qtr.

Introduction to studio activity. Laboratory experience, with emphasis on drawing and design. Lectures and discussion about fields of specialization in fine arts.

**171 Drawing U 5**

(423) A, W. 5 2-hr. lab.

*Prereq.: 170 or permission of instructor.*

The use of various drawing media with continuation of the underlying principles as utilized in 170. Laboratory and field problems.

**175 Painting U 5**

(500) W, Sp. 5 2-hr. lab.

*Prereq.: 171.*

Emphasis on the use of color, drawing, and design in the development of a personal idiom of expression. Opaque media. Laboratory and field problems.

**180 Sculpture U 5**

(461) A, W, Sp. 5 3-hr. lab.

*Prereq.: 170.**Not open to students with credit for 581.*

An introduction to the principles of sculpture, emphasizing basic forming processes and materials.

**190 Introduction to Fine Art Activities U 3**

(401) A, W, Sp. 1 cl., 4 1-hr. lab.

*Prereq.: Not open to candidates for the degrees B.F.A. and B.Sc. in Ed. with Fine Arts as a major, nor to students with credit for 170 or 290.*

An investigation of visual form, its perception, development, and use through studio experience.

**200 Orientation to Art Education U 3**

(459) Sp. 3 cl.

*Prereq.: 2nd yr. standing.*

Historical introduction to the art education program, with attention to the orientation and professional preparation of an art teacher.

**210 History of Western Art I U 3**

(501) A, W, Sp. 3 cl.

*Prereq.: 3rd year standing or 110 or 111.*

A survey of Ancient and Early Medieval Art.

**211 History of Western Art II U 3**

(502) A, W, Sp. 3 cl.

*Prereq.: 3rd year standing or 110 or 111.*

A survey of Romanesque, Gothic, Renaissance, and Mannerist Art.

**212 History of Western Art III U 3**

(503) A, W, Sp. 3 cl.

*Prereq.: 3rd yr. standing or 110 or 111.*

A survey from Baroque through Contemporary Art.

**213 History of Oriental Art U 3**

(509) A, Sp. 3 cl.

*Prereq.: Junior standing or 110 or 111.*

A survey of Far Eastern Art: India, China, and Japan.

**240 Elementary Ceramic Art U 5**

(490) A, W, Sp. 1 cl., 9 lab. hrs.

Introduction to the art phases of the ceramic field. Laboratory practice in the hand forming process.

**242† Ceramic Laboratory U 3**

(587) A, W, Sp. 9 lab. hrs.

*Prereq.: 140 or 240 or permission of instructor.*

Specific problems in the ceramic art field dealing with form, and processes such as the potter's wheel.

**244 Ceramic Art Laboratory U 5**

(491) A, W, Sp. 15 lab. hrs.

*Prereq.: 140 or 240 or permission of instructor.*

Introduction to more-involved forming processes such as the potter's wheel, model and mold making.

**245 Intermediate Ceramic Laboratory U 5**

(590) A, W, Sp. 15 lab. hrs.

*Prereq.: 244 or permission of instructor.*

Laboratory practice in designing ceramic wares, with emphasis on the use of the potter's wheel.

**246 Intermediate Ceramic Laboratory U 5**

(592) A, W, Sp. 15 lab. hrs.

*Prereq.: 245 or permission of instructor.***250 Fundamentals of Design U 3**

(577) A. 3 2-hr. lab.

*Prereq.: 190 or 290 or permission of instructor.*

The application of principles of design in the decorative arts. Study of textiles, home furnishings, and other phases of contemporary design.

**251 Design I U 5**

(431) A. 5 3-hr. lab.

*Prereq.: Design major.*

An introduction to the theory, methods and practices of design with an emphasis upon methods of inquiry, techniques, and procedures used in design problem solving.

**252 Design I U 5**

(432) W. 5 3-hr. lab.

*Prereq.: 251.*

A continuation of 251 with emphasis upon the technical, analytical, and organizational skills required in the design process.

**253 Design I U 5**

(433) Sp. 5 3-hr. lab.

*Prereq.: 252.*

A continuation of 252 with emphasis upon three dimensional models, color themes and applications.



- 258 Typography** U 3  
 (558) A, W, Sp. 1 cl., 3 2-hr. lab.  
*Prereq.: 170.*

The principles of typography and their application.

- 260 Orientation to Design and Planning** U 3  
 (539) Sp. 3 cl.  
*Prereq.: Design major.*

Introduction to the theory, practice and history of design for all majors in the Product Design, Space and Enclosure Design, and Visual Communication Design curricula.

- 270 Water Color Painting** U 3  
 (407) Sp. 2 3-hr. lab.  
*Prereq.: 171.*  
*Not open to majors in Fine Arts.*

Painting from still life, models, and landscape. Lectures, laboratory work, and criticisms.

- 272 Life Drawing** U 5  
 (505) A, W, Sp. 5 3-hr. lab.  
*Prereq.: 171.*

Drawing from the human figure, using a variety of media. Discussion of drawing as related to important styles. Laboratory problems and field trips.

- 273 Oil Painting** U 5  
 (528) A, W, Sp. 5 3-hr. lab.  
*Prereq.: 175.*

Painting from still life, with the object of developing the color sense and acquiring directness of presentation. Problems in the organization and execution of pictures.

- 274 Water Color Painting** U 5  
 (527) Sp. 5 3-hr. lab.  
*Prereq.: 171.*

Special emphasis on water color's unique capacities for personal expression. Problems in landscape, still life, and the figure.

- 276 Introduction to Printmaking** U 5  
 (526) A, Sp. 5 2-hr. lab.  
*Prereq.: 171.*

The basic tools, methods, and materials of printmaking. Study and examination of original prints.

- 280 Construction Sculpture** U 5  
 (534) A, W. 5 2-hr. lab.  
*Prereq.: 180.*

Study of three-dimensional form through the use of power and hand tools.

- 281 Modeling and Carving** U 5  
 Sp. 5 3-hr. lab.  
*Prereq.: 180.*

An intermediate studio course dealing with modeled and carved sculpture in media such as clay, wax, wood, plaster, and stone.

- 282 Life Sculpture** U 5  
 (562) A, W. 5 3-hr. lab.  
*Prereq.: 180 and 272 or permission of instructor.*

Aspects of the human form studied in relation to the materials of sculpture. Experimentation in a choice of materials: clay, wax, cement, plaster, metal.

- 290 Fundamentals of Art** U 5  
 (430) A, W, Sp. 5 2-hr. lab.  
*Prereq.: Not open to majors in Fine Arts or to students with credit for 300.*

An introduction to art through studio experience, exploring two-dimensional and three-dimensional media, by an analysis of form, and expression.

- 295 Drawing** U 3  
 (402) A. 6-hr. lab.  
*Prereq.: Arch. 2nd yr. standing.*

Visual fundamentals as expressed through drawing. Emphasis upon configuration and visual relationships.

- 296 Drawing from Life** U 3  
 (411) W. 6 lab. hrs.  
*Prereq.: Arch. 2nd yr. standing and 295.*

Drawing from the human figure, study of gesture and planar relationships in two and three dimensional space.

- 297 Form Organization** U P 3  
 (406) A, Sp. 3 2-hr. lab.  
*Prereq.: Dent. 1st yr. standing or Arch. 2nd yr. standing.*

Drawing and sculpture, with emphasis on visual organization.

- 300† Art for Elementary Teachers** U 5  
 (569) A, W, Sp. 5 2-hr. lab.

Laboratory experiences with two-dimensional and three-dimensional materials toward understanding the visual arts as background for teaching in the elementary schools.

- 401 Art Education Laboratory** U 5  
 (548) A, W. 5 3-hr. lab.  
*Prereq.: 200 and Ed. P. standing.*

Laboratory problems with a variety of design materials, with attention to the nature of different media and their educational potential.

- 402 Art Education Laboratory** U 4  
 (549) Sp. 7 lab. hrs.  
*Prereq.: 401.*

Study of children's development in art; laboratory participation for critical observation and supervised teaching in an art program for children.

- 441\* Ceramic Composition** U 5  
 (593) A. 2 cl., 4 2-hr. lab.

A course in ceramic computations, designed for art students. Methods of representing ceramic composition; discussion of ceramic raw materials and their use in building bodies and glazes.

- 442\* Ceramic Composition** U 5  
 (594) W. 2 cl., 4 2-hr. lab.  
*Prereq.: 441.*

Laboratory practice in development of the aesthetic aspects of ceramic glazes and bodies; methods of presenting their fired composition and correction faults.

- 443\* Ceramic Composition** U 5  
 (595) Sp. 2 cl., 4 2-hr. lab.  
*Prereq.: 442.*

Laboratory study and development of individual projects leading to creation of ceramic compositions of aesthetic merit. Further studies in texture and color.

**450 Design II** U 5  
(554) A. 5 2-hr. lab.

*Prereq.: 253 and junior standing or Design Area approval. Concur. 460.*

Resolution of design problems in two and three dimensions.

**451 Design II** U 5  
(555) W. 5 2-hr. lab.

*Prereq.: 450, 460. Concur. 461.*

Resolution of problems in information presentation and communications.

**452 Design II** U 5  
(556) Sp. 5 2-hr. lab.

*Prereq.: 451, 461. Concur. 462.*

Resolution of problems in visual communications.

**460 Design II** U 5  
(582) A. 5 2-hr. lab.

*Prereq.: 253. Concur. 450.*

Application of research and planning techniques required for the solution of industrial design problems. Emphasis on structural problems.

**461 Design II** U 5  
(583) W. 5 2-hr. lab.

*Prereq.: 450 and 460. Concur. 451.*

A study of general systems as applied to the design of products and environments.

**462 Design II** U 5  
(584) Sp. 5 2-hr. lab.

*Prereq.: 451 and 461. Concur. 452.*

An integration of design problems comprised of informational products and environmental elements.

**465 Space and Enclosure Design** U 5  
(576) Sp. 1 cl., 5 2-hr. lab.

A study of form and order concepts in environmental space and enclosure including exhibition systems and storage problems.

**468 Elements of Weaving** U 5  
(572) A, W, Sp. 5 2-hr. lab.

*Prereq.: 251 or 290, or permission of instructor.*

An introduction to the creative and functional aspects of handweaving. Experience in the construction, warping, threading and the manipulation of both standard and modern design techniques.

**469 Weaving** U 3  
(573) A, W, Sp. 3 2-hr. lab.

*Prereq.: 468.*

The use of weaving materials and equipment, with an emphasis on creative design of functional and decorative fabrics.

**500 Art for Elementary Teachers** U 3  
(570) A, W, Sp. 3 2-hr. lab.

*Prereq.: 290 or 300.*

Problems of teaching in terms of personal knowledge about art, insight into children's art work, and understanding of elementary school curriculum.

**501 Art Workshop for Elementary Teachers** U G 4

(799) Su. (2nd term).

*Prereq.: Elem. Ed. 4th yr. standing.*

*Full time of student for first 3 weeks of 2nd term.*

Laboratory experiences with a media toward understanding the visual arts; study of children's art expression; problems of teaching the arts in the elementary school program.

**515 Renaissance Art in Italy** U G 5  
(654) A. 5 cl.

*Prereq.: 211 or permission of instructor.*

A study of architecture, sculpture, and painting in Italy during the fourteenth, fifteenth and sixteenth centuries.

**520 Modern European Art** U G 5  
W. 5 cl.

*Prereq.: 212 or permission of instructor.*

European Art from about 1800 to the present, with emphasis on the outstanding masters of painting and sculpture.

**530 American Art** U 3  
(585) Sp. 3 cl.

*Prereq.: 212 or permission of instructor.*

A study of architecture, painting, and sculpture in America.

**550 Development of Interior Design I** U 3

(605) A. 3 cl.

*Prereq.: 210, 211, 212 or Hist. 101, 102 or equiv.*

A survey of European interior from 1300 to 1850, followed by a study of French design from Louis XIII through the Empire period.

**551 Development of Interior Design II** U 3

(606) W. 3 cl.

*Prereq.: 550.*

A study of the Tudor, Jacobean, Carolean, Georgian, and Regency Periods—considering the aesthetic, political, and economic implication.

**552 Development of Interior Design III** U 3

(607) Sp. 3 cl.

*Prereq.: 551.*

A survey of American interiors since 1650, followed by a study of the development of interior design in the Western world since 1880. Field trips.

**570 Advanced Life Drawing** U 5  
(625) A, W, Sp. 5 3-hr. lab.

*Prereq.: 272.*

Advanced problems in drawing from life and figure composition.

**571 Advanced Water Color Painting** U G 5  
Sp. 5 3-hr. lab.

*Prereq.: 272, 274.*

Painting from still life, models, and landscapes. Special problems in organization and development of pictures.



- 572 Advanced Water Color Painting U 5**  
(644) *Sp. 5 3-hr. lab.*  
*Prereq.: 274.*  
Further practice in the water color medium, with emphasis on the critical capacity of the student. Laboratory problems and field trips.
- 573 Advanced Oil Painting U 5**  
(660) *A, W, Sp. 5 3-hr. lab.*  
*Prereq.: 272, 273.*  
Painting in oil from still life and the costume model. Advanced problems in composition.
- 580 Ceramic Sculpture U G 5**  
*W. 5 3-hr. lab.*  
*Prereq.: 281.*  
An advanced level studio course dealing with various methods of building and firing clay sculpture; emphasis on clay's unique structural and forming possibilities.
- 581 Welded and Forged Sculpture U G 5**  
*Sp. 5 3-hr. lab.*  
*Prereq.: 280, 281.*  
An introduction to metal construction in sculpture by oxyacetylene welding, arc welding, and forming methods with forge and hammer.
- 582 Sculpture Foundry U G 5**  
(728) *A. 5 3-hr. lab.*  
*Prereq.: 280, 281, 282.*  
An introduction to traditional and experimental methods used in the development and casting of sculpture; experience in the operation of foundry material and equipment.
- 603 Theory of Art Education U G 4**  
(600) *A. 9-hr. lab.*  
*Prereq.: 402 and Educ. 514, 535.*  
Problems of art education in the public schools; observation in the public schools. *Barkan, Ecker.*
- 613† Primitive Art U G 3**  
(679) *Sp. 3 cl.*  
*Prereq.: 6 hrs. Art History or Archaeology or Anthropol.*  
The art of various ethnic groups from prehistoric times to the present. *Kaplan.*
- 615† Latin American Art U G 3**  
(675) *W. 3 cl.*  
*Prereq.: 9 hrs. Art History or permission of instructor.*  
A survey of the Pre-Columbian, Colonial, and Modern periods in Hispanic America and Brazil. *Baigell.*
- 616 The Art of India I U G 3**  
(626) *A. 3 cl.*  
*Prereq.: 213 or 9 hrs. in Art History.*  
A cultural art history of India through classical times, Ca. 650 A.D., in terms of monuments, people and religious philosophies.
- 617 The Art of India II U G 3**  
*W. 3 cl.*  
*Prereq.: 616.*  
A cultural art history of post-classical India, Ceylon, Central Asia, Indonesia and Indo-China.
- 618† The Art of China U G 5**  
(627) *W. 5 cl.*  
*Prereq.: 213 or 9 hrs. Art History.*  
A cultural art history of China in terms of monuments, people, and ideas. *Kaplan.*
- 619 The Art of Japan U G 3**  
(628) *Sp. 3 cl.*  
*Prereq.: 213 or 9 hrs. Art History.*  
A cultural art history of Japan in terms of monuments, people, and beliefs. *Kaplan.*
- 620 Greek Archaeology U G 5**  
(689) *A. 5 cl.*  
*Prereq.: 210 or 10 hrs. in Classics or permission of instructor.*  
Minoan-Mycenaean civilization as revealed by archaeology. Classical Greek sites with emphasis on the arts and social, economic, religious data provided by the archaeological material. *Rubright.*
- 621 The Art of Ancient Egypt U G 5 and the Near East**  
(670) *W. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
The specialized study of the art and archaeology of the valleys of the Nile and Tigris Euphrates in ancient times. *Rubright.*
- 622 Ancient Greek and Roman Art U G 5**  
(671) *Sp. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
The development of Greek and Roman art from 1000 B.C. to late Roman times.
- 624 Early Christian and Byzantine Art U G 3**  
(632) *A. 3 cl.*  
*Prereq.: 210 or permission of instructor.*  
The Christian art of the Mediterranean region to the eighth century and the art of the Byzantine Empire to the fifteenth century. *Ludden.*
- 625 Romanesque and Gothic Art U G 5**  
(633) *W. 5 cl.*  
*Prereq.: 210 and 211 or permission of instructor.*  
The art of Western Europe from the Carolingian period to the fourteenth century. *Ludden.*
- 627 Northern Renaissance Art U G 5**  
(684) *Sp. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
The art of The Netherlands, France, Germany, and England from 1400 to 1600—with emphasis on Jan van Eyck, Rogier van der Weyden, Fouquet, Durer, Holbein, Bosch and Breughel. *Ludden.*
- 629 Fifteenth Century Italian Art U G 5**  
*W. 5 cl.*  
*Prereq.: 515.*  
A selective study of painting and sculpture of the Quattrocento. *Melnikas.*
- 630 Sixteenth Century Italian Art U G 5**  
*Sp. 5 cl.*  
*Prereq.: 515.*  
A study of the major artists of the High Renaissance and Mannerist periods in Italy. *Melnikas.*

**631 Art of the Seventeenth Century in Europe U G 5**

(686) A. 5 cl.

*Prereq.: 9 hrs. Art History or permission of instructor.*

Baroque Art in Italy, France, Spain, and the Lowlands—with emphasis on the major artists. *Cope.*

**633† The Art of Russia U G 3**

A. 3 cl.

*Prereq.: 9 hrs. of Art History.*

A study of the history of art in Russia from the Pre-historic and Byzantine sources to the present.

**635 Nineteenth Century European Art U G 5**

(678) W. 5 cl.

*Prereq.: 212 or 520, or permission of instructor.*

A study of European art from NeoClassicism through Post Impressionism. Emphasizing the study of the works of the major painters. *Patton.*

**636 Twentieth Century European Art U G 5**

(629) A, Sp. 5 cl.

*Prereq.: 212 or permission of instructor.*

A study of the major achievements in painting, sculpture, and architecture since 1900.

**637 American Art to 1900 U G 5**

Sp. 5 cl.

*Prereq.: 530.*

A study of the history of art in America from Colonial Times to the end of the nineteenth century. *Baigell.*

**638 Twentieth Century American Art U G 3**

(669) W. 3 cl.

*Prereq.: 212 or 530, or permission of instructor.*

A study of significant developments in twentieth century American architecture, painting, and sculpture. *Baigell.*

**640 Studio Kilns and Firing Practices U G 5**

A. 15 lab. hrs.

*Prereq.: Permission of instructor.*

The design, construction, and use of simple gas and electric ceramic studio kilns; practice in the various types and methods of firing.

**641 Ceramic Reproduction Processes U G 5**

W. 15 lab. hrs.

*Prereq.: Permission of instructor.*

Studies in the designing, fabrication, and uses of models and molds in such multiple ceramic production processes as casting, jiggering, and pressing.

**642 Advanced Ceramic Laboratory U G 5**

Sp. 15 lab. hrs.

*Prereq.: Permission of instructor.*

Design and construction of large ceramic art forms.

**650 Interior Environment I U 5**

(603) A. 1 cl., 11 lab. hrs.

*Prereq.: 212, 465.*

Study of materials and factors peculiar to the field of interior environment. Solving of interior problems. Practice in the visual presentation of design solutions. Field trips.

**651 Interior Environment II U 5**

(604) W. 1 cl., 11 lab. hrs.

*Prereq.: 650.*

Continuation of experience in solving interior environmental problems and presentation. A review of professional practice and ethics.

**652 Interior Environment III U 5**

Sp. 2 cl., 4 2-hr. lab.

*Prereq.: 650, 651.*

A design thesis necessitating research, visual solutions and specifications in areas concerning the community environment.

**660 Design III. Product U 5**

(608) A. 5 2-hr. lab.

*Prereq.: 452, 462. Concur. 693.04 for 5 hrs.*

A study of materials, construction techniques, and fabrication of products.

**661 Design III. Product U 5**

(609) W. 5 2-hr. lab.

*Prereq.: 660. Concur. 693.04 for 5 hrs.*

Design problems related to manufacturing processes, materials, and technology. Laboratory practice in planning and design for mass production.

**662 Design III. Product U 5**

(610) Sp. 5 2-hr. lab.

*Prereq.: 661. Concur. 693.04 for 5 hrs.*

Laboratory practice in research, planning and design for industrial production.

**665 Design III. Visual Communication U 5**

(635) A. 5 2-hr. lab.

*Prereq.: 452, 462. Concur. 693.02 for 5 hrs.*

Explorations coordinating graphic media, technology, and techniques in advanced two dimensional and three-dimensional graphic problems. Research and development projects.

**666 Design III. Visual Communication U 5**

(636) W. 5 2-hr. lab.

*Prereq.: 665. Concur. 693.02 for 5 hrs.*

Continuation of 665.

**667 Design III. Visual Communication U 5**

(637) Sp. 5 2-hr. lab.

*Prereq.: 666. Concur. 693.02 for 5 hrs.*

Continuation of 666.

**670 Comprehensive Drawing U G 5**

(687) A. 5 3-hr. lab.

*Prereq.: 272.*

Exploration of the structure and interrelationships of visual form in drawing, painting, and sculpture. The principal historical modes of drawing will be examined.

**677 Graphic Processes U G 5**

(643) W. 5 3-hr. lab.

*Prereq.: 175. Graduate students must have 15 cr. hrs in drawing and painting.*



Lithography and serigraphy explored by students as part of their professional experience in print-making. *Gatrell.*

**678 Graphic Processes U G 5**  
(688) A. 5 3-hr. lab.

*Prereq.: 175. Graduate students must have 15 cr. hrs. in drawing and painting.*

Woodcuts, etchings, and engravings explored by students as means for individual expression. *Chafetz.*

**680† Large Sculpture Projects U G 5**  
Sp. 5 3-hr. lab.

*Prereq.: 280, 281.*

An advanced level studio course dealing with large-scale sculpture constructed in relation to architecture.

**681 Advanced Figurative Sculpture U G 5**  
(729) A, W. 5 3-hr. lab.

*Prereq.: 281, 282.*

An advanced level studio course dealing with individual study of the relationship of sculptor to the model. Various media.

**693 Special Problems U G 2-5**  
(661) A, W, Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 45 cr. hrs.*

Advanced study for students in specialized programs. *Hausman and Staff.*

- .01 History
- .02 Visual Communication Design
- .03 Ceramics
- .04 Design
- .05 Art Education
- .06 Printmaking
- .07 Weaving
- .08 Space and Enclosure Design
- .09 Drawing
- .10 Painting
- .11 Sculpture

**715 Research Methods in Art History U G 3**

(720) A.

*Prereq.: 20 hrs. in Art History.*

Investigations of source materials, bibliography, concepts and techniques of research.

**718 Studies in Italian Renaissance Art U G 5**

(730) A, W. 5 cl.

*Prereq.: 515 or 629 or permission of instructor.*

Painting tradition in Florence and Siena (from Duccio and Giotto to Michelangelo and Mannerists); emphasis on how paintings of major Tuscan artists reflect cultural trends. *Melnikas.*

**725 Studies in Baroque Art U G 3**

(708) Su. 3 cl.

Selected problems in the painting, sculpture, and architecture of Italy in the 17th century. *Cope.*

**726 Studies in Spanish Art U G 3**

(704) W. 3 cl.

*Prereq.: Permission of instructor.*

A selective study of the architecture, sculpture, painting, and minor arts of Spain. *Cope.*

**804 Research Problems in Art Education G 3-5**

(718) Sp.

Problems of art education at the elementary, secondary, and college level. Individual student problems will be initiated in light of current educational needs. *Barkan, Ecker, Hausman.*

**805 Art Education in the Elementary Schools G 5**

(710) A.

The role of the Art Supervisor for curriculum development and instruction in the elementary school program. *Barkan, Hausman.*

**806 Art Education in the Secondary Schools G 5**

(714) A.

The role of the Art Supervisor for curriculum development and instruction in the secondary school program. *Barkan, Hausman.*

**807 Minor Seminar for the Practicing Art Teacher G 3-5**

(715) A.

Curriculum problems in teaching the visual arts. Studio work in related arts; theoretical considerations. *Barkan, Ecker.*

**816 Museum Problems G 3-5**

(685) W.

An introduction to professional work in museums. *Kaplan.*

**839 Studies in Art Theory and Criticism G 3**

(721) W.

Investigations of theories of art and their applications. *Ludden.*

**840 Ceramic Design Techniques G 3-5**

(722) A.

*Prereq.: Permission of instructor.*

Personal development in the techniques and processes of the ceramic designer with emphasis upon quality as evidenced in form, color, and decoration. *Bogatay.*

**841 Ceramic Design Techniques G 3-5**

(723) Sp.

*Prereq.: 840.*

Continuation of 840.

**845 Problems in Ceramic Composition G 3-5**

(813) W.

Research in the development of special ceramic compositions pertinent to particular problems in ceramic design. *Littlefield.*

**846 Problems in Ceramic Composition G 3-5**

(814) W, Sp.

*Prereq.: 845.*

Continuation of 845.

- 847 Historical Materials and Processes** G 3-5  
(815) W.  
Original research in derivation and use of historical ceramic materials and processes with specific relation to the problems of the ceramic industrial designer or the practicing potter.
- 848 Historical Materials and Processes** G 3-5  
(816) Sp.  
Prereq.: 847.  
Continuation of 847.
- 870 Mural Painting** G 3-5  
(726) Sp.  
Studies in wall decoration for specific architectural setting. Presentation sketches and fullscale execution. Traditional and contemporary media.
- 871 Mural Painting** G 3-5  
(727) Su.  
Prereq.: 870.  
Continuation of 870.
- 874 Painting** G 3-5  
(817) W.  
Emphasis on the principles of abstraction in pictorial organization. Attention to the relationship of subject matter and abstraction as related to contemporary and traditional approaches. *Gatrell, King, Sherman.*
- 875 Painting** G 3-5  
(724) A.  
The painter's development as a creative artist, the relation of theory and practice. Individual and group criticism on work in progress. Lectures and field trips. *Gatrell, King, Sherman, Csuri.*
- 876 Painting** G 3-5  
(725) W.  
Prereq.: 875.  
Continuation of 875.
- 879 Perception-Art Form Seminar** G 2  
(705) W. 2 cl.  
Seminar utilizing the Ames Visual Demonstration Center as a basis for discussion of perception and aesthetic form. *Sherman.*
- 881 Advanced Sculpture** G 3-5  
(818) A.  
Advanced sculpture with a wide range of choice in media.
- 885 Advanced Sculpture** G 3-5  
(819) W.  
Prereq.: 881.  
Continuation of 881.
- 887 Advanced Sculpture** G 3-5  
(820) Sp.  
Prereq.: 885.  
Continuation of 885.
- 911 Research Problems in Art Education** G 3-5  
(801E) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 914† Seminar in Oriental Art** G 2-5  
(804A) W.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Kaplan.*
- 917 Seminar in Medieval Art** G 2-5  
(804C) Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Ludden.*
- 920 Seminar in Italian Renaissance Art** G 2-5  
(804F) Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Melnikas.*
- 930 Seminar in Modern Art** G 2-5  
(804D) A.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Ludden.*
- 932 Seminar in American Art** G 2-5  
(804E) A.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Patton.*
- 939 Seminar in Art Theory and Criticism** G 2-5  
(804B) Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs. *Ludden.*
- 940 Research Problems in Ceramics** G 3-5  
(801C) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 950 Research Problems in Design** G 3-5  
(801D) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 970 Research Problems in Painting** G 3-5  
(801P) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 971 Research Problems in Printmaking** G 3-5  
(801G) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 980 Research Problems in Sculpture** G 3-5  
(801S) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs.
- 993 Individual Studies** G 1-5  
(701) A, W, Sp.  
Repeatable to a maximum of 45 cr. hrs. *Hausman and staff.*



- .01 History
- .03 Ceramics
- .04 Design
- .05 Art Education
- .06 Printmaking
- .10 Painting
- .11 Sculpture

- 999 Research in Fine Arts** G Arr.  
 (950) A, W, Sp.  
*Research for thesis and dissertation purposes only.*

## Forestry

Office: Department of Horticulture and Forestry, 118 Horticulture and Forestry Building, 1827 Neil Avenue. PROFESSORS †HOWLETT (Chairman), †ALBAN, BEATTIE, †BROWN, †CHADWICK, COWEN, †DONOHO, †GOULD, †HARTMAN, †HILL, †KIPLINGER, LAURIE (Emeritus), and †REISCH; ASSOCIATE PROFESSORS †CAHOON, †CLEMENTS, †GEISMAN, †KRETCHMAN, and TOUSE; ASSISTANT PROFESSOR †GALLANDER.

- 221 Coniferous Dendrology** U 5  
 (409) A. 3 cl., 2 2-hr. labs.  
*Prereq.: Bot. 100 or 102.*

A study of the principal species of Gymnosperms in the United States with emphasis on identification, range, and silvical characteristics. Cowen.

- 222 Hardwood Dendrology** U 5  
 (408) Sp. 3 cl., 2 2-hr. labs.  
*Prereq.: Bot. 100 or 102.*

A study of the principal species of Angiosperms in the United States with emphasis on identification, range, and silvical characteristics. Cowen.

- 223 Silvics** U 5  
 (502) W. 5 cl.  
*Prereq.: Bot. 100 or 102.*

The effect of site factors on forest vegetation and action of forest cover on the site; characteristics of individual trees and forest stands. Cowen.

- 310 Principles of Forestry** U 5  
 (410) A. 3 cl., 2 2-hr. lab.

History of American forests, their character and occurrence; underlying fundamentals of silviculture and forest management; introduction to forest management and protection. Touse.

- 321 Silviculture** U 5  
 (421) A. 3 cl., 2 2-hr. labs.  
*Prereq.: 221, 222 and 223.*

A study of the methods of handling the forest on a permanent basis to assure the reproduction and proper growth of tree crops. Cowen.

- 323 Forest Mensuration** U 5  
 (423) W. 5 cl.

*Prereq.: 221, 222 and 223.*

The measurement of the forest and forest products. Touse.

- 325 Forest Management** U 5  
 (425) Sp. 5 cl.  
*Prereq.: 321 and 323.*

A study of the practical problems of managing woodland property, both from the technical and the financial standpoint. Cowen.

- 431 Wood Structure and Properties** U 5  
 A. 5 cl.

*Prereq.: 221 and 222.*

The classification and identification of the important timber species based upon wood structure and properties; defects in wood; moisture relationships; physical and chemical properties. Touse.

- 432 Manufacturing Forest Products** U 5  
 W. 5 cl.

Intensive study of the manufacturing industries based on wood products or products derived from wood by chemical and other means. Touse.

- 433 Analysis of Forest Industry Management** U 5  
 Sp. 5 cl.  
*Prereq.: 431 and 432.*

A survey of the common problems encountered by managers of the wood-using industries; emphasis on sources of information and methods of solution. Touse.

- 593 Individual Studies** U G 2-5  
 (701) A, W, Sp.  
*Prereq.: Permission of instructor.*

Special problems in the field of pomology, vegetable gardening, floriculture, and ornamental horticulture, horticultural products or forestry.

- 897† Interdepartmental Seminar in Natural Resources** G 1  
 A, W, Sp.  
*(See under Interdepartmental Seminars.)*

- 898† Interdepartmental Seminar in Nutrition and Food Technology** G 1  
 Sp.  
*(See under Interdepartmental Seminars.)*

- 999 Research in Horticulture and Forestry** G Arr.  
 (950) A, W, Sp.  
*Research for thesis and dissertation purposes only.*

## French

Office: 116 Derby Hall, 154 North Oval Drive.

PROFESSORS †BULATKIN (Chairman), †CARLUT, †DAVIDSON, DEMOREST (Emeritus), HAVENS (Emeritus), †MEIDEN, and MOORE (Emeritus); ASSOCIATE PROFESSOR †PIMSLEUR; ASSISTANT PROFESSORS ASTIER and MITCHELL; INSTRUCTORS FOUREMAN, HONEYCUTT, and IMHOFF.

### 101 Elementary French U 5

(401) A, W, Sp. 5 cl.

May not be taken concur. with Span. 101-102, Port. 101-102, Ital. 101-102. Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102 or if taken after successful completion of the fourth regular university course in another foreign language.

Elements of French grammar, with oral and written exercises. Attention to ear training and oral practice. Elementary reading based on French geography, history, and customs.

### 102 Elementary French U 5

(402) A, W, Sp. 5 cl.

Prereq.: 101.

May not be taken concur. with Span. 101-102, Port. 101-102, Ital. 101, 102.

The elements of French grammar with abundant oral and written exercises. Development of conversational skill. Reading, vocabulary building, attention to French idioms.

### 103 Intermediate French U 5

(403) A, W, Sp. 5 cl.

Prereq.: 102.

Review of salient points of elementary grammar, attention to French idioms. Reading of short stories, plays, and novels.

### 104 Intermediate French U 5

(404) A, W, Sp. 5 cl.

Prereq.: 103 or 112.

Course conducted in French.

Reading of French plays, short stories, and novels. Emphasis on oral practice and French idioms.

### 105 Elementary French Conversation and Composition U 5

(410) A, W, Sp. 5 cl.

Prereq.: 104.

Course conducted in French.

Intensive practice in oral and written French, based on texts and periodicals concerned with French life of today. Grammar and idiom review.

### 112 Intensive French U 5, 10, 15

Su. 15 cl. Enrollment limited to 25 students.

Prereq.: Permission of Chairman.

Full time of student required. Equiv. of 101, 102, 103. Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.

Elementary and intermediate French. Intensive drill in forms, syntax, vocabulary, and idiom. Reading of short stories and plays in French.

### 162 Elementary-Intermediate French U 5 for Selected Students

(415) W. 5 cl.

Prereq.: Grade of "A" in 101 and permission of department.

Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

### 163 Elementary-Intermediate French U 5 for Selected Students

(416) Sp. 5 cl.

Prereq.: 162.

Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

### 271 French Classics in Translation U 3

(570) A, Sp. 3 cl.

Not open to French majors.

Reading, analysis and discussion of major French works in translation, beginning with the *Song of Roland* and continuing with authors such as Montaigne, Pascal, Molière, Voltaire, Rousseau. Mitchell.

### 401 Review Grammar and Composition U 3

(518) A, W, Sp. 3 cl.

Prereq.: 105.

Review of French grammar; composition on assigned topics and practice in translation.

### 402 Intermediate French Conversation U 3 and Composition

(521) A, Sp. 3 cl.

Prereq.: 105.

Vocabulary building, practice in speaking French, conversation and composition dealing with social and economic aspects of French life.

### 403 Intermediate French Conversation U 3 and Composition

(522) W. 3 cl.

Prereq.: 105.

Vocabulary building, practice in speaking French, conversation and composition dealing with intellectual and artistic aspects of French life.

### 404 French Pronunciation U 5

(532) A, W, Sp. 5 cl.

Prereq.: 105.

Not open to students with credit for (632).

Formation of French sounds, rules of pronunciation and diction; lectures and practical exercises; use of phonetic symbols.

### 421 Introduction to Modern French U 5 Literature

(517) A, W, Sp. 5 cl.

Prereq.: 104.

Not open to students with credit for (417).

Rapid reading and discussion of French literary movements and masterpieces of the nineteenth century and their relation to modern France.

### 422 Masterpieces of French Literature: Middle Ages and Renaissance U 5

(529) W. 5 cl.

Prereq.: 421.



- 423 Masterpieces of French Literature: Seventeenth and Eighteenth Centuries** U 5  
(530) A, Sp. 5 cl.  
Prereq.: 421.
- 441†\* La civilisation française des origines à nos jours.** U 5  
(535) A. 5 cl.  
Prereq.: 401 or 402 or 403.  
Course conducted in French.  
Major developments of French culture down to 1900. *Carlut.*
- 571 Reading of French (Basic)** G 0  
(405) A, W, Sp. 5 cl.  
Prereq.: Graduate standing.  
Repeatable.  
Designed primarily for students who have no formal preparation in French, covering basic grammar and vocabulary.
- 572 Reading of French (Intermediate)** G 0  
A, W, Sp. 3 cl.  
Prereq.: Grade of C or above in 571, or equivalent preparation demonstrated by a placement test.  
Repeatable twice.  
Satisfactory completion of this course (grade of A or B) will be accepted as evidence of a thorough reading knowledge in fulfillment of Ph.D. language requirement.
- 573 Reading of French (Advanced)** G 0  
A, W, Sp. 3 cl.  
Prereq.: Grade of A or B in 572, or equivalent preparation demonstrated by a placement test.  
Repeatable twice.  
Satisfactory completion of this course (grade of A or B) will be accepted as evidence of a thorough reading knowledge in fulfillment of Ph.D. language requirement.
- 601 Modern French Syntax** U G 5  
(628) A, W, Sp. 5 cl.  
Prereq.: 401.  
Systematic review of French grammar with composition and other exercises, based on contemporary authors. Modern tendencies in syntactic analysis. *Meiden.*
- 602 French Translating** U G 3  
(619) A, W. 3 cl.  
Prereq.: 601 or equiv.  
Translations from French to English and English to French. *Astier.*
- 603 Advanced Spoken and Written French** U G 3  
(638) Sp. 3 cl.  
Prereq.: 402, 403 and 601 or equiv.  
Intensive practice in speaking and writing French. Based on contemporary usage.
- 604 Advanced French Pronunciation and Phonostylistics** U G 3  
(642) Su. 2 cl., 1 lab. hr.  
Prereq.: 404 or permission of instructor.  
Training in auditory and oral aspects of French pronunciation. Special emphasis on analysis of different types of spoken French.
- 621\* French Literature of the Renaissance** U G 5  
(616) W. 5 cl.  
Prereq.: 421 and either 422 or 423.  
Selections from Marot, Rabelais, the *Pleïade* and Montaigne as they reflect the age of humanism and illustrate the transition from medieval to modern forms and ideas.
- 622†\* French Classicism, 1600-1715** U G 5  
(617) A. 5 cl.  
Prereq.: 421 and either 422 or 423.  
The formation of the classic spirit. The perfection of dramatic form and the seventeenth century portrait of man. *Davidson.*
- 623\* French Literature of the Enlightenment** U G 5  
(618) A. 5 cl.  
Prereq.: 421 and either 422 or 423.  
A study of the ideas of the eighteenth century in their relation to modern times. Special emphasis on Montesquieu, Voltaire, Diderot, and Rousseau. *Davidson.*
- 624\* The Romantic Period in French Literature, 1800-1850** U G 5  
(603) W. 5 cl.  
Prereq.: 421 and either 422 or 423.  
The development of romanticism and rise of realism in the first half of the nineteenth century in the novel, poetry, and drama. *Carlut.*
- 625†\* French Literary Currents 1850-1914** U G 5  
(604) W. 5 cl.  
Prereq.: 421 and either 422 or 423.  
Realism, naturalism, symbolism, and the movements of reaction in the novel and in literary criticism. *Carlut.*
- 626\* Contemporary French Literature** U G 5  
(640) Sp. 5 cl.  
Prereq.: 421 and either 422 or 423.  
Twentieth century literary currents, and their significance, with special attention given to the novel. Proust, Gide, Malraux, Mauriac, Bernanos, Saint-Exupéry, Camus, Sartre and others. *Astier.*
- 627†\* Contemporary French Drama** U G 3  
(634) Sp. 3 cl.  
Prereq.: 421 and either 422 or 423.  
Plays of Lenormand, Rostand, Claudel, Giraudoux, Cocteau, Montherlant, Anouilh, Sartre, Camus and Ionesco. The different theatres and directors from Copeau to the present day. *Astier.*
- 628\* Modern French Poetry** U G 3  
(651) W. 3 cl.  
Prereq.: 421 and either 422 or 423.  
Source and processes of poetic creations as exemplified in selected works of French poets from Baudelaire to the present time. *Astier.*
- 629†\* Explication de textes** U G 3  
(639) Sp. 3 cl.  
Prereq.: 421 and either 422 or 423.  
Repeatable to a maximum of 6 cr. hrs.  
Intensive linguistic and literary exploration of representative passages from modern French authors. *Davidson.*

- 631†\* French Literature** U G 3-5  
 (645) Sp. 5 cl.  
*Prereq.: 421 and either 422 or 423.*  
*Repeatable to a maximum of 15 cr. hrs.*
- 641° La civilisation française contemporaine** U G 3  
 (636) A. 3 cl.  
*Prereq.: 401 and 402 or 403.*  
*Course conducted in French.*  
 Life, institutions, and culture of contemporary France. *Carlut.*
- 693 Individual Studies in French** U G 1-5  
 (701) A, W, Sp.  
*Prereq.: Permission of instructor.*
- 783 Honors Course in French** U 3-5  
 (705) A, W, Sp.  
*Prereq.: 4th yr. standing with a grade of A in at least half of the French courses and an average of B in the remainder, and permission of the department and the Honors Committee of the College.*  
*Repeatable to a maximum of 15 cr. hrs.*  
 Offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course. Work in conference, library, or phonetics laboratory.
- 794 Special Group Studies in French** U G 1-5  
 A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*  
 Investigation of minor problems in the various fields of French literature and language.
- 811 History of the French Language: Introduction** G 3  
 (729) A. 3 cl.  
*Prereq.: M.A. Candidates in French; others by permission of instructor.*  
 Basic concepts of historical linguistics; the major factors of change in the history of the French language from Roman times to the present. *Bulatkin.*
- 812\* History of the French Language: Phonology** G 3  
 (801) W. 3 cl.  
*Prereq.: Knowledge of Latin.*  
 The evolution of sounds from Latin to Modern French.
- 813\* History of the French Language: Morphology** G 5  
 (802) Sp. 5 cl.  
*Prereq.: 812.*  
 The evolution of grammatical forms from Latin to Modern French. *Bulatkin.*
- 821 Old French Literature** G 3  
 (813) Sp. 3 cl.  
 Main currents of Old French Literature to 1300. Reading of the *Chanson de Roland*, *Yvain* of Chrétien de Trôyes, Bérout's, *Tristan*, representative lyrics. *Bulatkin.*
- 822†\* Middle French Literature** G 3  
 (805) W. 3 cl.  
*Prereq.: 821.*  
 Survey from about 1300 to 1465. Machaut, Froissart, Deschamps, Christine de Pisan, Charles D'Orleans, Villon, Anglo-French literary relations, with special reference to Chaucer, *Bulatkin.*
- 824†\* Topics and Problems in 17th Century French Literature** G 3  
 (717) W. 3 cl.  
*Prereq.: 622 or permission of instructor.*  
 Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship. *Davidson.*
- 825\* Topics and Problems in 18th Century French Literature** G 3  
 (718) A. 3 cl.  
*Prereq.: 623 or permission of instructor.*  
 Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship. *Davidson.*  
 Topic for 1967-68: To be announced.
- 826\* Topics and Problems in 19th Century French Literature** G 3  
 (719) Sp. 3 cl.  
*Prereq.: 624 or 625 or permission of instructor.*  
 Intensive exploration of special topics or problems with readings in literary works in relevant criticism and scholarship. *Carlut.*  
 Topic for 1967-68: To be announced.
- 827†\* Topics and Problems in 20th Century French Literature** G 3  
 (720) A. 3 cl.  
*Prereq.: 626 or equiv.*  
 Intensive study of a specific topic or problem, with readings of selected literary and critical works. *Antier.*
- 828\* Old Provençal** G 3  
 (803) A. 3 cl.  
*Prereq.: 813 or Span. 813.*  
 Origin of the troubadour lyric. Its history, as to form and content, in the eleventh and twelfth centuries. Elements of phonology and morphology. *Bulatkin.*
- 829\* Old Provençal** G 3  
 (804) W. 3 cl.  
*Prereq.: 828.*  
 Troubadour lyric in the thirteenth century. Increased attention to non-lyric genres, and to prose. Continuation of linguistics, with greater emphasis on semantic problems. *Bulatkin.*
- 831 Seminar in French Literature** G 2-5  
 (811) A. (3-5 cr. hrs.), Su. (2-3 cr. hrs.)  
*Prereq.: Permission of instructor.*
- 832 Seminar in French Literature** G 2-5  
 (812) W. (3-5 cr. hrs.), Su. (2-3 cr. hrs.)  
*Prereq.: Permission of instructor.*
- 833 Seminar in French Literature** G 3-5  
 (817) Sp.  
*Prereq.: Permission of instructor.*



**885 Introduction to Methods in the History and Criticism of Literature G 5**

(731) A. 4 or 5 cl.

Selected readings in basic literary history, criticism and theory, with practice in the use of standard bibliographical aids to scholarship. Davidson.

**886† Bibliography and Method G 3**

(880) Sp. 3 cl.

A course to acquaint graduate students with tools, problems, and methods of linguistic and literary research. Davidson.

**999 Research in French Language or Literature G Arr.**

(950) A, W, Sp.

Research for thesis and dissertation purposes only.

**Geodetic Science**

Office: 236 Graduate School, 164 West 19th Avenue.  
PROFESSORS †UOTILA (Chairman), HALLERT (Visiting), HEISKANEN (Emeritus), and †MUELLER;  
ASSISTANT PROFESSORS †GHOSH and †RAPP;  
LECTURER DOWDY; INSTRUCTOR CUSHMAN.

**GENERAL PREREQUISITIES FOR ALL 500 COURSES**

Prerequisites for all 500 courses include Math. 151 and Civil E. 401. The latter may be waived for students who can demonstrate through previous experience a comprehensive understanding of the topics of this course.

**512 Field and Land Surveying U 5**

W. 4 cl., 1 3-hr. lab.

Basic plane surveying techniques for geodetic science students.

**513 Geodetic Surveying U 5**

A. 4 cl., 1 3-hr. lab.

Prereq.: 512 or permission of instructor.

Geodetic surveying techniques with emphasis on U. S. field procedures.

**522 Geometric Photogrammetry U 5**

A. 4 cl., 1 3-hr. lab.

May be taken concur. with Civil E. 401.

History; central projection; principles of orientation; principles of optics; photography; stereovision and basic parallax formulae; geometry of single image photogrammetry; radial triangulation; rectification; map compilation.

**GENERAL PREREQUISITIES FOR ALL 600 COURSES**

Prerequisites for all 600 courses include Math. 254 and Physics 231.

**613 Introduction to Advanced Geodesy U G 5**

W. 5 cl.

Prereq.: 513; prereq. or concur. 642, Physics 232 and 233.

Not open for graduate credit to students registering for 614 or 863.

Geometrical and physical geodesy; three dimensional geodesy; classical and modern concepts of geodesy; the dynamic earth.

**614 Fundamentals of Geometric Geodesy U G 5**

W. 4 cl., 1 2-hr. lab.

Prereq.: 641; prereq. or concur. 642, Physics 232 and 233.

Fundamental parameters of ellipsoidal geometry, normal section, geodesic; ellipsoidal triangles; direct and inverse problems; differential formulae.

**624 Instrumentation in Photogrammetry U G 5**

W. 4 cl., 1 3-hr. lab.

Prereq.: 522 or permission of instructor.

Introduction to Rectifiers and Third, Second and First-order stereo-plotters; optical, mechanical and photo-goniometer type instruments; evaluation, testing and adjusting of stereoplotters.

**625 Photo Interpretation U G 4**

A. 3 cl., 1 3-hr. lab.

Prereq. or concur.: 522 or permission of instructor.

Principles of reading, analysis and interpretation of photographs; application of photographs in geological, forest, agricultural, geographical, etc., interpretations; using the techniques of non-mapping problems.

**626 Aerial and Terrestrial Photography U G 4**

(721) A. 3 cl., 1 3-hr. lab.

Prereq.: 522, 641; prereq. or concur.: Physics 232 and 233 or permission of instructor.

Properties, design and calibration of various photogrammetric cameras; physical characteristics and quality control of photography; photogrammetric airplanes and auxiliary devices; image evaluation.

**627 Introduction to Advanced Photogrammetry U G 5**

W. 4 cl., 1 3-hr. lab.

Prereq.: 522; prereq. or concur. 642, Physics 232 and 233.

Not open for graduate credit to students registering for 624, 826 or 823.

Geometry of single and double image photogrammetry; instruments; relative and absolute orientation; field control and photogrammetric control extension; photo interpretation; various applications of photogrammetry.

**631 Map Projections U G 3**

Sp. 3 cl.

Projections of the sphere; projections of the ellipsoid to the sphere; the mathematics of the principal map projections used for major map series.

**641 Applied Mathematical Methods in Geodetic Science U G 5**

A. 5 cl.

Mathematical techniques used in geodetic science; tensor and vector analysis; matrix computations; special functions; spherical harmonics.

**642 Introduction to Adjustment Computations U G 5**

(653) W. 4 cl., 1 3-hr. lab.

Normal distribution; measures of accuracy; method of least squares; weights, observation and condition equations; solution of normal equations; graphical presentation of residuals and errors.

**657 Instrumentation in Electronic Surveying U G 5**

(758) A. 4 cl., 1 3-hr. lab.

Prereq.: 613 or 614.

Introduction to electronic surveying systems; analysis of electronic and electro-optical instruments, especially referring to accuracy and portability; theory of geometry of electronic location.

**663 Geodetic Astronomy U G 4**

(617) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 513, Astron. 611.

The determination of time, latitude, longitude and azimuth from astronomical observations; the application of solar eclipses, and lunar occultations in geodesy.

**686 Field Work in Geodesy U G 5**

Su. (1st term). 1 cl., 5 4-hr. labs.

Prereq.: 513.

**687 Field Work in Geodetic Astronomy U G 5**

Su. (2nd term). 1 cl., 5 4-hr. labs.

Prereq.: 663.

**688 Field Work in Photogrammetry U G 5**

Su. (2nd term). 4 cl., 5 4-hr. labs.

Prereq.: 512 and 522.

**689 Field Work in Distance Measurement U G 5**

Su. (1st term). 1 cl., 5 4-hr. labs.

Prereq.: 512.

**693 Individual Studies in Geodetic Science U G 2-9**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

Assigned reading, laboratory or field work, under the guidance of a staff member, arranged to meet the requirements of individual students.

**694 Special Group Studies in Geodetic Science U G 2-9**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

### GENERAL PREREQUISITES FOR ALL 800 COURSES

Prerequisites for all 800 courses include Geod. Sc. 641, Physics 232 and 233. Prereq. or concur.: 642.

**812 Geometric Geodesy G 5**

Sp. 4 cl., 1 2-hr. lab.

Prereq.: 614.

Reduction of observations to the ellipsoid; Laplace stations; triangulation observation equations; refraction; determination of the size and shape of the reference ellipsoid; fundamentals of three-dimensional geodesy.

**821 Stereophotogrammetry G 4**

(723) A. 3 cl., 1 3-hr. lab.

Prereq.: 624 or permission of instructor.

Detailed description of first-order stereo instruments; empirical, graphical and numerical relative orientation methods for flat and mountainous models; absolute orientation; terrestrial photogrammetry.

**822 Photogrammetry in Practice G 5**

(725) W. 4 cl., 1 3-hr. lab.

Prereq.: 821 or permission of instructor.

Flight plans; terrestrial station project; ground control and signalization in terrestrial and aerial photogrammetry; plotting and data reduction; various applications; accuracy and economy; cost computation.

**823 Theory of Errors in Photogrammetry G 5**

W. 4 cl., 1 3-hr. lab.

Prereq.: 821 and 846.

Theory of errors of exterior and interior orientation; model errors and Y-parallax formulas; analysis of various methods of relative orientation; critical surfaces.

**825 Analytical Photogrammetry G 5**

Sp. 4 cl., 1 3-hr. lab.

Prereq.: 821; prereq. or concur. 846.

Basic principles; measurements of photo coordinates with comparators and first-order instruments; space resection and intersection; orientation matrix; analytical aerial and space triangulation; stellar photogrammetry.

**826 Aerial Triangulation G 5**

Sp. 4 cl., 1 3-hr. lab.

Prereq.: 821; prereq. or concur.: 846.

Spatial aerial triangulation at first order stereo instruments; independent pairs of photographs; strip and block triangulation; auxiliary data; independent geodetic control; radial triangulation; accuracy and economy.

**844 Geodetic Applications of Digital Computers G 5**

W. 3 cl., 1 2-hr. lab.

Prereq.: Math. 241 and permission of instructor.

Advanced programming techniques; computer developments and use in geodesy, photogrammetry and cartography.

**846 Adjustment Computations G 5**

Sp. 4 cl., 1 3-hr. lab.

Prereq.: 513, 522.

Adjustment by matrices; variances, covariances and correlations; weights; conditions with parameters; combinations of observation, condition and quasi-normal equations; latent roots; generalized matrix algebra.

**847 Mathematical Projections in Geodesy G 5**

A. 4 cl., 1 2-hr. lab.

Prereq.: 631.

General surface to surface mapping; conformal projections; Transverse Mercator; Lambert conformal conic; transformation equations; ellipsoid to ellipsoid mapping.



**852 Applications in Electronic Surveying G 4**

(759) W. 3 cl., 1 3-hr. lab.

Prereq.: 657.

Propagation velocity, soil conductivity, ionospheric and ground reflections; curvature of the ray path, correction to spatial chord, reduction on to the ellipsoid; trilateration, control extension.

**853 Navigation G 3**

W. 3 cl.

Prereq.: 657.

Sea, air and space navigation; analysis of instruments, accuracy, range and portability; analysis of environment factors and geometric aspects.

**863 Gravimetric Geodesy G 5**

(751) Sp. 4 cl.

(851) Prereq.: 846, and Geol. 643.

Applications of gravimetry in geodesy; classical and modern theories in gravimetric geodesy; the gravitational field of the earth.

**868 Satellite Geodesy G 5**

(855) A. 4 cl., 1 3-hr. lab.

Prereq.: 663.

The geometrical and dynamic applications of artificial satellites and the moon in geodesy; Stellar triangulations.

**885 Research Principles and Techniques G 2-9**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

**887 Seminar G 1-5**

(795) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

**994 Special Group Studies in Geodetic Science G 2-9**

(794) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

**999 Research in Geodetic Science G Arr.**

(950) A, W, Sp.

Repeatable.

**Geography**

Office: 136 Hagerty Hall, 1775 South College Road.

PROFESSORS †TAAFFE (Chairman), †BASILE, CARLSON (Emeritus), †HOFFMAN, †HUNKER, †RANDALL, SMITH (Emeritus), and VAN CLEEF (Emeritus); ASSOCIATE PROFESSORS †BROWN, †KING, and †PAT- TEN; ASSISTANT PROFESSORS CASETTI, †COX, †DEMKO, †GAUTHIER, COLLEDGE, LENTNEK, RAYNER, SHECK, VAN DOREN, and WITTHUHN.

**200 World Regional Geography U 5**

(504) A, W, Sp. 5 cl.

A comparative study of representative regions of the world. An examination of the cultural, social, economic, and political developments in relation to the geographical conditions.

**220 Introduction to Geography U 5**

(401) A, W, Sp. 5 cl.

The elements of the natural environment, their characteristics, distribution, and significance in the human habitat.

**240 Economic Geography U 5**

(403) A, W, Sp. 5 cl.

Not open to students with credit for 340.

Geography of the world's principal commodities; a survey of the economic activities of the major political areas in relation to their geographic conditions.

**340 Fundamentals of Economic Geography U 3**

(503) A, W, Sp. 3 cl.

Not open to students with credit for 240.

Elements of the human habitat with particular emphasis on world resources. Geographical and economic factors in the development of the major industrial areas of the world.

**400 Geography of United States and Canada U 3**

(505) A, W, Sp. 3 cl.

Prereq.: 200 or 220 or 240 or equiv.

A geographical analysis of the United States and Canada; the correlation of their natural resources and other environmental factors with their economic and cultural development.

**401 Geography of Ohio U 3**

(605) Sp. 3 cl.

Prereq.: 200 or 220 or 240 or equiv.

An appraisal of geographic factors in the development of Ohio's natural resources, agriculture, manufacturing, and commerce. Historical development of the major economics.

**405 Geography of Latin America U 3**

(624) A, W. 3 cl.

Prereq.: 200 or 220 or 240 or equiv.

Geographic analysis of Middle and South America emphasizing the interrelationships of the resource base, cultural characteristics, and outside influences upon economic development.

.01 A. Middle America

.02 W. South America

**408 Geography of Africa U 3**

(627) W. 3 cl.

Prereq.: 200 or 220 or 240 or equiv.

The African environment and the development of culture and economic life. Impact of alien culture on Africa. Islamic and western influences in creating geographic regions.

**410 Geography of Western Europe U 3**

(621) W. 3 cl.

Prereq.: 200 or 220 or 240 or equiv.

Geographic factors in the economic, social, and political progress of the nations of Western Europe. Major problems of the area in the light of their geographic background.

**411 Geography of Eastern Europe U 3**  
(620) Sp. 3 cl.

*Prereq.: 200 or 220 or 240 or equiv.*

Resources, their assessment, and development, and related problems in Eastern Europe. The geographic significance of each state to the Communist bloc and to the West.

**412 Geography of the Soviet Union U 3**  
(622) W. Sp. 3 cl.

*Prereq.: 200 or 220 or 240 or equiv.*

The major regional divisions of the Soviet Union. The resource base in relation to the economic and political aims of the Soviet State.

**415 Geography of the Middle East U 3**  
(626) W. 3 cl.

*Prereq.: 200 or 220 or 240 or equiv.*

The Middle East and its natural regions in relation to local and international problems. Physical and cultural patterns in relation to the current economics.

**416 Geography of the Far East U 3**  
(625) Sp. 3 cl.

*Prereq.: 200 or 220 or 240 or equiv.*

The geographic divisions of southern, southeastern, and eastern Asia. The major activities of the people in the regions of densest population and greatest economic importance.

**520 Climatology U G 4**  
(615) A, W. 4 cl.

The elements and the controls of climate. Types of climate and their distribution. Climates and their effects on the economic and other activities of man.

**530 Conservation of Natural Resources U G 3**  
(604) A. 3 cl.

Economic and geographic appraisal of resource conservation in the United States. Regional and national planning for resource utilization.

**545 Geography of Transportation U G 3**  
(630) W. 3 cl.

A geographical analysis of the nature and distribution of rail, water, highway, pipeline, and air transport facilities and their importance in regional development.

**546 The Historical Geography of Commerce U G 3**  
(631) A. 3 cl.

Geographic factors in commerce to 1900. Resources and production in the ancient and medieval world. Trade routes and the exchange of goods and ideas.

**560 Political Geography U G 3**  
(712) W, Sp. 3 cl.

*Prereq.: Permission of instructor.*

The geographical characteristics of nation states. The geographic factors in the evolution, structure, and function of states. The relation of geopolitics to political geography.

**580 An Introduction to Cartography U G 3**  
(510) A, W. 3 cl.

Cartographic techniques, map compilation, scales, generalization, symbolization, grid systems, reproduction, and map-making instruments and equipment.

**620 Intermediate Climatology U G 3**  
W, Sp. 3 cl.

*Prereq.: 520 or equiv. and permission of instructor*

Detailed analysis of atmospheric processes, the general circulation and associated macro- and micro-climates; forecasting climatic parameters; applied climatology and bioclimatology; climatic change.

**640 Localization of Manufacturing Industries U G 3**  
(603) A. 3 cl.

*Prereq.: Permission of instructor.*

The changing character and concentration of industrial districts. Representative industries in relation to labor supply, sources of raw material and power, transportation, and markets.

**647 The Geography of Modern Commerce U G 3**  
(633) A, W. 3 cl.

*Prereq.: Permission of instructor.*

Basic factors in foreign and domestic commerce. Raw materials and other important commodities in international trade. The development of major trade areas and trade routes.

**650 Urban Geography U G 3**  
(634) A, W, Sp. 3 cl.

*Prereq.: Permission of instructor.*

Origin and growth of cities. Structure and function of urban centers, their areal expansion, and intertrade center relations, each examined in relation to city planning.

**660 Intermediate Political Geography U G 3**  
Sp. 3 cl.

*Prereq.: 560 or equiv. and permission of instructor.*

Application of spatial analysis and related models, behavioral theory, and quantitative techniques to the study of the spatial dimensions of political activity.

**670 Population Geography U G 3**  
A, W. 3 cl.

*Prereq.: 240.*

Analysis of population distributions, locational arrangements of growth, densities, and migration flows; spatial relationships between population variables and social, economic, and environmental factors.

**Natural Resources Problems, Programs, and Policies.**

(See Agr. Econ. 680.)

**681 Cartography and Map Interpretation U G 3**

(611) W. 3 cl.

Map projections and their uses for particular maps and the map series published by the United States government, by foreign countries, and by private map-producing organizations.



**682 Individual Studies in Cartography U G 3-5**

(702) A, W, Sp. Conf. and lab.

*Prereq.: Permission of instructor.*

Individual study of cartographic subjects: map compilation, map design, color separation, map reliability, analysis of source materials, toponymy, graphical symbolism, physiographic drawing, etc.

**693 Individual Studies U G 3-5**

(701) A, W, Sp.

*Prereq.: Permission of instructor.**Repeatable with permission of instructor.*

Individual study of a special problem or of a particular region.

**694 Group Studies U G 3**

(798) A, W, Sp.

*Prereq.: Permission of instructor.*

Group study of special topics in various fields of Geog.

**Introduction to National Security**

(See Nat. Sec. Pol. S. 702)

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785)

**800 Seminars in Regional Geography G 3-5**

(804) A, W, Sp. 2 cl.

Geographical investigation of a selected area. The region under study will be announced.

**Seminar in National Security Research**

(See Nat. Sec. Pol. S. 801)

**820 Seminars in Physical Geography G 3-5**

(807) A, W, Sp. 2 cl.

- .01 Problems in Climatology
- .02 Problems in Soils Geography
- .03 Special Problems.

**840 Seminars in Economic Geography G 3-5**

(803) A, W, Sp. 2 cl.

Readings and research in specific aspects of economic geography.

- .01 Location Theory
- .02 Transportation Theory
- .03 Resource Analysis
- .04 Special Topics

**850 Seminars in Urban Geography G 3-5**

(806) A, W, Sp. 2 cl.

The development of theory in urban geography and its application to selected problems.

- .01 Theory of Urban Geography
- .02 Problems in Urban Geography

**860 Seminars in Political and Historical Geography G 3-5**

(805) A, W, Sp.

Readings and research in political and historical geography.

**880 Cartography and Map Intelligence G 3-5**

(812) Sp.

Readings and research in cartography, graphics, and map intelligence.

**882 Development of Geographic Thought G 4**

(811) Sp. 3 cl.

The evolution of concepts concerning the nature, scope, and methodology of geography: present focus and trends as reflected in current literature.

**883 Application of Quantitative Methods in Geography G 4**

(802) A, W. 2 cl. 2 lab.

*Prereq.: Course in introductory statistics and permission of instructor.*

Application of quantitative methods of geographic problems. Spatial statistics, area sampling, maps of residuals, regionalization methods, simulations maps.

To be taken in sequence:

- .01 Applications I
- .02 Applications II

**885 Field Work in Geography G 4**

(700) Sp. 2 cl. Sat. lab.

The practice of field observation and geographic mapping.

**889 Seminars in Geography G 3-5**

(850) A, W, Sp.

*Topics to be announced each qtr.***896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**

Sp.

*(See under Interdepartmental Seminars.)***897 Interdepartmental Seminar in Natural Resources G 1**

A, W, Sp.

*(See under Interdepartmental Seminars.)***899 Interpartmental Seminar G 1-5**

A, W, Sp.

*Topics to be announced each qtr.***999 Research in Geography G Arr.**

(850) A, W, Sp.

Research for thesis and dissertation purposes only.

## Geology

Office: 107 Mendenhall Laboratory, 125 South Oval Drive. PROFESSORS †GOLDTHWAIT (Chairman), †BATES, †BULL, †FULLER, LAMEY (Emeritus), †LA ROCQUE, †MOORE, †PINCUS, †SCHOPF, SPIEKER (Emeritus), STEPHENSON, STEWART (Emeritus), and †SWEET; ADJUNCT PROFESSOR ANDERSON; ASSOCIATE PROFESSORS †CORBATÓ, †FAURE, †SHRUM, †SUMMERSON, †WEISS, and †WHITE; ASSISTANT PROFESSORS COLLINSON, †LEHR, SHULTZ, and †STEPHENS.

### 100 Introduction to Geology U 5

(416) A, W, Sp. 4 cl., 1-hr. lab., 1 half-day field trip.  
Prereq.: Eligibility for Math. 150.

Not open to students with credit for (401) or (451).

The materials of the earth's crust, the processes that produce and modify them, and the development of the earth and its life forms through time.

### 101 Physical Geology U 5

(417) A, W, Sp. 4 cl., 1 2-hr. lab., 1 half-day field trip.  
Prereq.: 100.

Not open to students with credit for (401) or (451).

Minerals and rocks and their origin; land forms and how they are produced; structural features of the earth's crust.

### 102 Historical Geology U 5

(418) A, W, Sp. 4 cl., 1 2-hr. lab., 1 half-day field trip.  
Prereq.: 100 or (401) or (451).

Not open to students with credit for (402).

The history of the earth and its inhabitants through geologic time.

### 200 Study of Geologic Maps U 5

(505) A, Sp. 5 2-hr. labs.  
Prereq.: 101, 102.

Geologic structures as interpreted from geologic maps and aerial photographs. *Summerson*.

### 201 Invertebrate Paleontology U 5

(520) A, Sp. 5 cl.  
Prereq.: 102.

A systematic survey of groups of the invertebrate animals significant in the geologic record. *La Rocque, Sweet*.

### 202 The Common Minerals and Rocks U 3

(524) W. 3 2-hr. labs.

Prereq.: 101 and Chem. 121.

Not open to Geol. majors or students with credit for 203.

A study of the common minerals and rocks, their associations, occurrences, identifying properties, and origin. *Moore*.

### 203 The Common Rocks U 3

(525) Sp. 3 2-hr. labs.

Prereq.: (401) or (451) or 100 and Mineral. 411, 412.

Not open to students with credit for 202.

A study of the common rocks, their associations and occurrences, and elementary concepts regarding their origin. *Moore*.

### 204 Water Resources U 5

(533) W. 5 cl., 2 ½-day field trips.

Prereq.: 100.

Occurrence, movement and behavior of water in the hydrologic cycle with reference to scientific and technological problems relating to water resource development and conservation.

### 500 Paleozoic Stratigraphy U G 3

(618) W. 3 cl.

Prereq.: 201.

Not open for graduate credit to Geol. majors.

The principles of stratigraphy and related historical geology, developed by study of selected American and European Paleozoic examples. *Weiss*.

### 501 Mesozoic and Cenozoic Stratigraphy U G 3

(619) Sp. 3 cl.

Prereq.: 201.

Not open for graduate credit to Geol. majors.

The principles of stratigraphy and related historical geology, developed by study of selected American and European Mesozoic and Cenozoic examples. *Collinson*.

### 530 Structural Geology U G 5

(602) W. 4 cl., 1 2-hr. lab.

Prereq.: 200 and Math. 150.

Not open for graduate credit to Geol. majors.

A study of the principal kinds of geologic structure and their interpretation. *Moore*.

### 550 Geomorphology U G 5

(601) A. 4 cl., 1 2-hr. lab., field trips.

Prereq.: 101 or permission of instructor.

Not open for graduate credit to Geol. majors.

Detailed study of processes which shape the land surface and the forms produced. These are inspected on topographic maps and aerial photographs and in the area near Columbus. *White*.

### 560 Mineral Deposits and their Formation U G 3

(600) A. 3 cl., 1 2-hr. lab.

Prereq.: 203.

Not open to students with credit for (526).

A study of the components of the common mineral deposits, their associations and relations; elementary concepts regarding origin of mineral deposits. *Faure*.

### 570 Senior Thesis U G 1-3

A, W, Sp. Arr.

Prereq.: Senior standing in Geol.

Repeatable to a maximum of 3 cr. hrs.

The preparation of a report of professional quality, based on a research project.

### 580 Field Work in Earth Science U G 5

(632) Su. (1st term). Requires full time of student for 5 weeks.

Prereq.: 30 qtr. hrs. in Geol., Geog., Astron. or Meteor. with a minimum of 15 qtr. hrs. in Geol.; Educ. 604 and permission of instructor; Geol. 201, 202, and 550 recommended.

Not open for graduate credit to Geol. majors.

Essentials of field observation, mapping and data accumulation in the solution of earth science problems. The work is done in selected off-campus field localities.



**581.01 Field Geology U G 6**

(627A) Su. (1st term). Requires full time of student.

Prereq.: 200, 203 and permission of instructor; 201, 500 and 501 recommended.

Not open for graduate credit to Geol. majors.

Concentrated training in the basic essentials of field observation and mapping. The work is done in central Utah, with headquarters in Ephraim. Weiss.

**581.02 Field Geology U G 6**

(627B) Su. (2nd term). Requires full time of student.

Prereq.: 581.01.

Not open for graduate credit to Geol. majors.

Continuation of 581.01.

**600 Sediments and Sedimentary Rocks U G 5**

A. 3 1½-hr. cl.

Prereq.: 500, 501, 550.

The sources, dispersal, and accumulation of sediments and sedimentary rocks. Summerson.

**601 Optical Analysis of Sedimentary Rocks U G 5**

Sp. 1 cl., 2 3-hr. labs.

Prereq.: 600 and Mineral. 621.

Preparation and study of thin sections, grain mounts, and polished sections. Weiss, Moore.

**602\* Mechanical Analysis of Sediments U G 3**

(713) W. 2 cl., 1 3-hr. lab.

Prereq.: (609), 500 and 501.

The theory and application of various techniques in the laboratory study of sediments and sedimentary rocks, chiefly by nonmicroscopic methods. Summerson.

**610 Advanced Invertebrate Paleontology U G 5**

(624) A. 3 2-hr. lab.

Prereq.: 201.

Laboratory study of fossil faunas, including paleontological techniques and procedures. La Rocque.

**611\* Micropaleontology U G 5**

(623) Sp. 2 cl., 3 2-hr. labs.

Prereq.: 201.

A study of fossil microorganisms, especially the foraminifera, ostracodes and conodonts; structure, habits, taxonomic relationships, and phylogenetic development; preparation of faunas and their use in stratigraphic correlation. Sweet.

**612†\* Vertebrate Paleontology U G 5**

(622) W. 3 cl., 2 2-hr. labs.

Prereq.: 4th yr. standing in Zool. or Anat. or 201 and Zool. (401).

A study of the phylogenetic development of the fossil vertebrates throughout geologic time. The evolution of the vertebrate skeleton and various paleoecologic relationships. Stephens.

**613†\* Paleobotany U G 5**

(625) Sp. 2 cl., 2 3-hr. lec. and labs., 1-day field trip.

Prereq.: 100 and 10 cr. hrs. in Biol. Sc.

Terrestrial importance of plants, history of the plant kingdom, and evolution of major groups. Laboratory demonstration of plant fossils, their preservation, and methods of preparation. Schopf.

**620 Introduction to Isotope Geology U G 5**

(740) W. 5 cl.

Prereq.: Senior standing in Geol., Mineral., or related fields.

Theory of natural isotope abundance variations and applications to problems in the earth sciences. Faure.

**621 Introduction to Geochemistry U G 5**

A. 5 cl.

Prereq.: Senior standing in Geol., Mineral. or related fields; Chem. 122 or equiv.

Applications of the law of mass action and chemical thermodynamics to mineral equilibria of geological and geochemical interest. Faure.

**Practicum in the Earth Sciences for Teachers**

(See Ed. 626.)

(Offered in cooperation with the School of Ed.)

**630†\* Analysis of Structural Problems U G 3**

(725) A. 3 2-hr. lab.

Prereq.: 500, 501 and 530 and Math. 150 or 151.

Solution of structural problems by stereographic projection and other methods; structural interpretation of isopach, paleogeologic, facies, and other maps. Solution of areal and resource problems.

**631†\* Glaciology U G 4**

(708) Sp. 2 2-hr. cl.

Prereq.: 530, Physics 112, 113, Math. 151 or (536), Mineral. 411, or permission of instructor.

Types of glaciers, their feeding, mass budget, climatic relations, motion, and existing structures. Bull.

**632 Topics in Oceanography and Marine Geology U G 3**

(720) Sp. 3 cl.

Prereq.: Senior standing in Geol. or permission of instructor.

Lectures and seminars on the origin, development, and structure of ocean basins and their contents, and on contemporary oceanic processes of geological significance. Anderson.

**640†\* Fundamentals of Geophysics U G 3**

(634) A. 3 cl.

Prereq.: (401) or (451) or 100 and Physics 112 or 113 or 232 or 233.

Analytical treatment of the methods of gravimetry, seismology, terrestrial electricity, terrestrial heat and geomagnetism. The structure, composition and history of the Earth. Bull.

**641 Exploration Geophysics, Principles U G 3**

(635A) W. 3 cl.

Prereq.: (401) or (451) or 100 and Physics 112 or 113 or 232 or 233.

Principles and techniques of exploration geophysics, with emphasis on gravimetric, geomagnetic, seismic, electrical and radioactivity surveys. Corbato.

**642 Exploration Geophysics, Practical U G 2**

(635B) Sp. 2 2-hr. lab.

Prereq.: 641 or permission of instructor.

Methods of exploration geophysics. Gravity, seismic, electromagnetic, magnetic, and electrical surveys.

**643 Geophysics, Gravimetry U G 3**

(735) A. 3 cl.

Prereq.: 4th yr. standing in Geol. and Math. 151 or (536) and Physics 112 or 113 or 232 or 233, or 4th yr. standing in Geod. Sci. or Physics and (401) or (451) or (435); or 4th yr. standing in Civil E., or Petr. E.

Analytical treatment of concepts and methods of gravimetry; introductory theory of the gravitational potential; geological interpretation of gravity data. Bull.

**644<sup>a</sup> Advanced Geophysics U G 3**

(736) A. 3 cl.

Prereq.: 640 or 641 or permission of instructor.

A study of selected topics and problems in geophysics. Bull.

**650 Glacial Geology U G 5**

(613) Sp. 5 cl., field trips.

Prereq.: 550.

The features produced by glaciers, present or past, with special reference to features produced in Ohio. Goldthwait.

**651 Hydrogeology U G 5**

(637) Sp. 5 cl. 2 ½-day field trips.

Prereq.: Senior standing in Geol. or 101 and 4th yr. standing in Engr. or 101 and 204.

Geologic and hydrologic factors controlling the occurrence and behavior of ground water.

**652<sup>†</sup> Engineering Geology U G 5**

(636) W. 5 cl.

Prereq.: 4th yr. standing in Civil E., or Petr. E. or 530 or concur. 530.

Principles and techniques of geology in support of engineering.

**660 Economic Geology: Metals U G 5**

(605) W. 5 cl.

Prereq.: (526) or 560.

A study of the characteristics and origin of metallic mineral deposits. Shultz.

**661 Economic Geology: Petroleum U G 5**

(607) W. 3 cl., 2 2-hr. labs.

Prereq.: Senior standing in Petr. E. or 500, 501, and 530.

A study of the principles of petroleum geology. Bates.

**662<sup>†</sup> Economic Geology: The Industrial Minerals U G 3**

(709) A. 3 cl.

Prereq.: (526) or 560.

Not open to students with credit for (606).

The occurrence, origin, and distribution of the nonmetallic or industrial minerals, and their properties and uses. Bates.

**663<sup>\*</sup> Coal Geology U G 3**

(705) Sp. 2 cl., 2 2-hr. lec. and demonstration.

Prereq.: Permission of instructor.

Origin, occurrence, and variation in carbonaceous deposits; geology and economic application of coal; analytic and resources data. Schopf.

**670 Regional Geology U G 5**

W. 5 cl.

Prereq.: 500 or 501, 530, 550.

Geology of a selected region, such as the Appalachian Mountains or the Western Cordillera, developed by study of stratigraphy, structure and geomorphic history.

**680<sup>†</sup> Stratigraphic and Economic Geology of Ohio U G 5**

(708) A. 10-day period preceding A.; post-trip readings and report.

Prereq.: 203, 500, or permission of instructor.

Not open to students with credit for (608).

Concentrated field study of Ohio Paleozoic rocks and their economic products.

**681<sup>\*</sup> Appalachian Geology U G 5**

A. 10-day period preceding A.; post-trip readings and report.

Prereq.: 203, 500 or permission of instructor.

Concentrated field study in a selected area of the Appalachian Mountains or adjacent regions.

**693 Individual Studies in Geology U G 1-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

Special problems in any branch of geology for which the student has the proper qualifications.

- .01 Economic Geology
- .02 Engineering Geology
- .03 Extraterrestrial Studies
- .04 Field Geology
- .05 Geochemistry
- .06 Geomorphology
- .07 Geophysics
- .08 Glaciology and Glacial Geology
- .09 History of Geology
- .10 Hydrology
- .11 Marine Geology, Limnology, and Oceanography
- .12 Paleontology
- .13 Petrology and Petrography
- .14 Photogeology
- .15 Sedimentation
- .16 Stratigraphy
- .17 Structural Geology

**695 Paleocology U G 5**

(855) W. 5 cl.

Prereq.: 610, 611, 612 or 613.

A study of the principles of paleocology with illustrations from the literature and selected faunules. LaRocque.

**810 Graduate Seminar in Paleontology G 5**

A, W, Sp. 5 cl.

Prereq.: 201 and one of 610, 611, 612, 613.

Repeatable to a total of 20 cr. hrs.

Advanced topics in paleozoologic and paleobotanic morphology, taxonomy, and procedure; current questions in biostratigraphy, paleocology, and evolutionary development of fossil floras and faunas.

**820 Metamorphic Petrology G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: Mineral. 722.

Not open to students with credit for (609) or (815).

(Offered in cooperation with the Department of Mineral.)

The origin, occurrence, and associations of metamorphic rocks including the problem of granulization; chemical calculations and laboratory study of hand specimens and thin sections.



**821†\* Advanced Topics in Isotope Geology and Geochemistry G 3**

Sp. 3 cl.

Prereq.: 620 and 621.

Discussion of selected topics in cosmochemistry, geochronology and geochemistry with emphasis on research problems. *Faure*.

**830\* Advanced Structural Geology G 3**

(825) A. 3 cl.

Prereq.: 530 and 500 or 501 or (609) and Physics 111 or 231.

Recognition and interpretation of geological structures; application of theoretical analysis, field observation, and experimental methods to selected problems.

**850†\* Advanced Geomorphology G 3**

(827) W. 3 cl.

Prereq.: 550.

A seminar devoted to current and classical problems in geomorphology; such as, the origin of submarine canyons or pediments. *Goldthwait*.

**851†\* Advanced Hydrogeology G 5**

Sp. 5 cl., 3 ½-day field trips.

Prereq.: 651, Math. 152, Civil E. 613.

Quantitative studies of groundwater hydrology with special emphasis on well hydraulics and related geology.

**870\* Precambrian Geology G 3**

(820) Sp. 4 cl.

Prereq.: 500, 501, 530, and (609).

A study of the principles of Precambrian geology, and the Precambrian geology of important areas. *Faure*.

**871†\* Paleozoic Geology G 3**

(821) W. 3 cl.

Prereq.: 500, 501 and 530.

A study of the Paleozoic systems of the United States, subdivision, faunal sequences, and correlation with homotaxial deposits abroad. *Bates*.

**872†\* Mesozoic and Cenozoic Geology G 3**

(822) W. 3 cl.

Prereq.: 500, 501 and 530.

A study of the outstanding Mesozoic and Cenozoic sections of the world, with emphasis on principles of nomenclature, subdivision, correlation, and interpretation. *Collinson*.

**873\* Quaternary Geology G 3**

(823) W. 3 cl.

Prereq.: 650.

Chronology of Pleistocene glacial and interglacial events throughout the world; the use of animal and plant remains, soils, and radiocarbon in determining this chronology. *Goldthwait*.

**874 Seminar in the History of Geology G 3**

(851) Sp. 3 cl.

Discussion of the development of geology, intended to give the student a firm basis for comprehension of the science as it exists today. *LaRocque*.

**880 Field Geology for Science Teachers G 3**

(630) Sp. 5-day period during recess between W. and Sp.; pre-trip meeting and post-trip report.  
Prereq.: 100. Open only to students registered in the Academic Year Institute, or permission of instructor.

Not open to Geol. majors.

Application of geological principles in the field. Interpretation of earth features observable on a traverse crossing the Appalachian Mountain system. *Bates*.

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**

Sp.

(See under Interdepartmental Seminars.)

**999 Research in Geology G Arr.**

(950) A, W, Sp.

Research for thesis and dissertation purposes only.

**German**

Office: 213 Derby Hall, 154 North Oval Drive.

PROFESSORS †CUNZ (Chairman), †BEKKER, †FLEISCHHAUER, †HOFFMANN, MAHR (*Emeritus*), †SEIDLIN (*Regents*), and †WITKOWSKI; ASSOCIATE PROFESSOR †GROENKE; ASSISTANT PROFESSORS BELKIN, EDSE, GOODMAN, GOTTFELD, GRAY, NELSON, SCHINDLER, and VITT; INSTRUCTORS CHADEAYNE, GLINSKY, and RICHEIMER.

**PLACEMENT AND PROFICIENCY EXAMINATIONS**  
Students with two years of high school German register for German 103; however, in order to insure proper registration, placement tests are required of all students who continue their study of German in the department after beginning their language in high school. Such tests are given on the first day of instruction in each quarter. Consult Arts College catalogue.

Students who are given advanced standing in the department as a result of the placement and proficiency examination become eligible for University credit.

**EXCESS ENTRANCE CREDITS IN GERMAN**

Freshmen who have excess credits in foreign language are eligible for examination for advanced standing. The examination is given at the same time as the placement tests mentioned above.

**101 Elementary German U 5**

(401) A, W, Sp. 5 cl.

Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University Course in another foreign language.

**102 Elementary German U 5**

(402) A, W, Sp. 5 cl.

Prereq.: 101 or equiv.

**103 Intermediate German U 5**

(403) A, W, Sp. 5 cl.

Prereq.: 102 or equiv.

Reading of narrative prose; oral and written practice; grammar review.

**104 Intermediate German U 5**

(404) A, W, Sp. 5 cl.

Prereq.: 103, 113, or 112.

Reading of narrative prose; oral and written practice; vocabulary building.

**109 Elementary German Conversation U 2**

(409) A, W, Sp. 2 cl.

Prereq.: 102; also open to students with grade of A in 101. No audit.

**112 Intensive German U 5, 10, 15**

(412) Su. Enrollment limited to 20 students.

Prereq.: Permission of chairman.

Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit. Register before May 11.

Elementary and intermediate German for students desiring comprehensive knowledge of German in shortest possible time. Students will devote their entire time to this course.

**113 Intermediate Scientific German U 5**

(420) A, Sp. 5 cl.

Prereq.: 102.

Not open to students with credit for 103.

Reading of narrative prose; oral and written practice; introductory readings in scientific German.

**114 Intermediate Scientific German U 5**

(421) A, W. 5 cl.

Prereq.: 113, 103, or 112.

Not open to students with credit for 104.

Readings in scientific German.

**117 Elementary-Intermediate German U 5 for Selected Students**

(417) W. 5 cl.

Prereq.: Grade of A in 101.

**118 Elementary-Intermediate German U 5 for Selected Students**

(418) Sp. 5 cl.

Prereq.: 117

Successful completion of the sequence 101-117-118 fulfills language requirements and provides eligibility for 200 courses.

Continuation of 117.

**119 Review Grammar and Composition U 3**

(502) A. 3 cl.

Prereq.: 103, 118 or equiv.

Review of German grammar; syntax; assigned topics for composition.

**203 Intermediate German Conversation U 3**

(503) A, W, Sp. 3 cl.

Prereq.: 104 and 109 or equiv. with a minimum grade of C.

203 may be taken concur. with 204. No audit.

Practice in spoken everyday idiomatic German, based on texts and periodicals concerning German life today.

**204 German Composition U 2**

(504) A, W, Sp. 2 cl.

Prereq.: 104 and 109 or equiv. with a minimum grade of C.

204 may be taken concur. with 203. No audit.

Practice in simple writing with some conversation.

**225 Introduction to German Literature: The Classical Period U 5**

(575) A, W, Sp. 5 cl.

Prereq.: 104, 118, or equiv.

Students are advised to register also for 203, 204.

Readings from Goethe and Schiller.

**226 Introduction to German Literature: The Nineteenth Century U 5**

(576) A, W, Sp. 5 cl.

Prereq.: 104, 118, or equiv.

Students are advised to register also for 203, 204.

Readings from Brentano, Hoffmann, Storm, and Keller.

**227 Introduction to German Literature: The Twentieth Century U 5**

(577) A, W, Sp. 5 cl.

Prereq.: 104, 118, or equiv.

Students are advised to register also for 203, 204.

Readings from representative authors such as Mann, Schnitzler, Duerrenmatt.

**261 German Classics in Translation U 3**

W. 3 cl.

Not for credit on a major in German.

Social and intellectual forces in Germany as reflected in German literature from the Enlightenment to the middle of the nineteenth century; masterpieces from Goethe to Gottfried Keller. Seidlin.

**262 Modern German Literature in Translation U 3**

A. 3 cl.

Not for credit on a major in German.

Intellectual forces and literary trends in German literature from the end of the nineteenth century to the present; masterpieces from Gerhart Hauptmann to Bertolt Brecht. Hoffmann.

**361\* German Civilization I U 3**

(571) A. 3 cl.

Taught in English.

The cultural heritage of the German people from the beginning to about 1500. Institutions, phases of civilization, interrelationship of social and literary history. Cunz.

**362\* German Civilization II U 3**

(572) W. 3 cl.

Taught in English.

German civilization from Luther to the Age of Goethe. Cultural trends, social changes, historical development to the end of the Holy Roman Empire. Cunz.

**571 Basic German for Graduate Students G 0**

(499) A, W, Sp. 5 cl.

Prereq.: Grad. standing.

The fee for this course will be the same as that for a 5 cr. hr. course. No audit.



The fundamentals of German grammar, as required for the reading of German texts in the sciences and humanities.

**572 Reading for Research I G 0**  
(501) A, W, Sp. 3 cl.

*Prereq.: Grade of C or above in 571 or equiv. preparation demonstrated by a placement test.*

*Repeatable twice.*

*Open only to graduate students. No audit.*

Satisfactory completion of this course (grade of A or B) will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.

**573 Reading for Research II G 0**  
W. 3 cl.

*Prereq.: Grade of A or B in 572, or equiv. preparation demonstrated by a placement test.*

*Repeatable twice.*

*Open only to graduate students. No audit.*

Reading of difficult material at a reasonable rate of speed and with only infrequent use of dictionaries. Completion of this course with a grade of A or B will be accepted as evidence of a thorough reading knowledge of German.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

Unless otherwise indicated, the prerequisites for 600 courses are 15 hours of 200 courses (except 261, 262) in the department. Exceptions may be allowed by instructors for students with special qualifications.

**605†\* Introduction to the Study of Language U G 3**

(705) Sp. 3 cl.

Elements of linguistics with emphasis on the historical study of languages and on semantics; the position of Germanic in the Indo-European family of languages. *Groenke.*

**606†\* Introduction to the Historical Study of German U G 3**

(656) Sp. 3 cl.

The historical development of the German language, with a short survey of the Germanic languages; internal and external influences which have determined its characteristics (phonology, morphology, vocabulary). *Belkin.*

**611 Medieval German Literature U G 3**  
A. 3 cl.

Survey of German literature from the eighth century to the end of the Middle Ages. *Belkin.*

**612 Literature of Humanism, Reformation, and Baroque U G 3**  
W. 3 cl.

Survey of German literature from 1400 to 1700. *Bekker.*

**621 The German "Novelle" U G 3**  
(661) Sp. 3 cl.

Reading and analysis of masterpieces of the 19th and 20th centuries: Kleist, Eichendorff, Stifter, Keller, Thomas Mann. *Seidlin.*

**622 The German Drama U G 3**  
(662) A. 3 cl.

Reading and analysis of masterpieces of the 19th and 20th centuries: Schiller, Kleist, Grillparzer, Hebbel, Brecht. *Wittkowski.*

**623 German Lyrics U G 3**  
(663) W. 3 cl.

Analysis of German lyrics from 1200 to the present; study of specific forms: Volkslied, ballad, sonnet and individual great lyricists. *Hoffmann.*

**630 Advanced Conversation and Composition U G 3**

(685) W, Sp. 3 cl.

*Prereq.: 119, 203, 204, or permission of instructor.*

**635 Practical German Pronunciation U G 3**  
(691) Sp. 2 2-hr. cl.

*Prereq.: Permission of instructor.*

Standard German pronunciation. Oral and written drill. *Fleischhauer.*

**650 Proseminar U G 1 or 3**

Su. 3 cl., 3 cr. hrs.

Su. (first term). 3 cl. 1 cr. hr.

*Repeatable to a maximum of 24 cr. hrs.*

**693 Individual Studies in German U G 2-10**

(701) A, W, Sp.

*Prereq.: Permission of chairman.*

*Repeatable.*

Investigation of minor problems in the various fields of German literature and philology.

**694 Special Group Studies in German U G 2-10**

A, W, Sp.

*Prereq.: Permission of chairman.*

*Repeatable.*

Investigation of minor problems in the various fields of German literature and philology.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700**

Prerequisites for 700 courses are Grad. standing, or 4th year standing with 9 cr. hrs. in German at the 600 level, and permission of department chairman.

**721†\* German Literature of the Eighteenth Century U G 3**

A. 3 cl.

The literature of the Enlightenment and Storm and Stress; Lessing, Klopstock, Wieland, young Goethe and Schiller. *Cunz.*

**722†\* German Classical Literature U G 3**  
W. 3 cl.

Achievement of Goethe's and Schiller's major works. Their significance for modern times. *Seidlin.*

**723†\* Goethe's Faust U G 3**  
Sp. 3 cl.

History of the Faust legend from the sixteenth century to Goethe. Reading and discussion of the play. *Wittkowski.*

**724\* German Romanticism U G 3**  
W. 3 cl.

The romantic revolt against the ideas of classicism. Novalis, the Schlegels, Tieck, Kleist, Eichendorff, E. T. A. Hoffmann. *Seidlin.*

**725\* German Literature of the Nineteenth Century** U G 3

A. 3 cl.

Literary forces and trends from Goethe's death to the founding of the German Reich (Grillparzer, Buechner, Hebbel, Raimund, Moerike, Stifter, Keller, Meyer). *Wittkowski*.

**726\* Modern German Literature** U G 3

Sp. 3 cl.

Main currents of German thought and literature from Nietzsche to the present: Hauptmann, Schnitzler, Mann, Rilke, George, Hofmannsthal, Kafka, Brecht. *Hoffmann*.

**801\* Middle High German** G 5

A. 5 cl.

Middle High German texts. Methods of textual criticism. *Fleischhauer*.

**802\* Old High German** G 3

(805) W. 3 cl.

*Fleischhauer*.**803\* Gothic** G 3

(810) Sp. 3 cl.

*Fleischhauer*.**806†\* History of the German Language** G 3

(815) Sp. 3 cl.

Prereq.: 801.

Basic concepts of historical linguistics; the major factors of change in the history of German from Proto-Germanic to the present. *Fleischhauer*.

**821†\* History of German Literature until 1700** G 3

A. 3 cl.

Prereq.: Grad. standing.

Readings from the earliest period to the end of the 17th century. *Fleischhauer*.

**822†\* History of German Literature until 1700** G 3

W. 3 cl.

Prereq.: Grad. standing.

Continuation of 821. *Bekker*.**823†\* History of German Literature until 1700** G 3

Sp. 3 cl.

Prereq.: Grad. standing.

Continuation of 822. *Bekker*.**860 Seminar in German Literature** G 5

A, W, Sp. 2 cl.

Selected topics from German Literature after 1600; problems of methods and interpretation.

**870 Seminar in German Linguistics** G 3

A, W. 2 cl.

Selected topics from medieval literature, word history, stylistics, and psychology of language.

**999 Research in German** G Arr.

(950) A, W, Sp.

Research for thesis and dissertation purposes only.

**Graduate School Course**

Office: 110 Denny Hall.

**801 College Teaching** G 2

(701) W, Sp. 2 cl.

Prereq.: Permission of director of course.

Designed to acquaint prospective college teachers with the major problems involved in college teaching. *Austin*.

**Greek**

Office: 217 Derby Hall, 154 North Oval Drive.

PROFESSORS †BABCOCK (Chairman), †ABBOTT, †FORBES, †W. R. JONES, and †TITCHENER; ASSOCIATE PROFESSORS †LENARDON and †MORFORD; ASSISTANT PROFESSORS †BARMANN and †HOLSINGER.

See also Classics.

**101 Elementary Greek** U 5

(401) A. 5 cl.

Credit in 101 will count toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University course in another foreign language.

**102 Elementary Greek** U 5

(402) W. 5 cl.

Prereq.: 101.

**103 Intermediate Greek Reading** U 5

(403) Sp. 5 cl.

Prereq.: 102.

**112 Intensive Introduction to Greek** U 5, 10, 15

(415) Su. 10 cl. and 10 or more hrs. of supervised study. Full time of student req'd.

Equiv. of 101, 102 and 103. Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.

**200 Homer** U 5

(504) A. 5 cl.

Prereq.: 103 or 112.

*Davis*.**201 Herodotus** U 3

(604) W. 3 cl.

Prereq.: 200 or 210.

*Forbes*.**202 Euripides** U 3

(607) Sp. 3 cl.

Prereq.: 200 or 210.

*Davis*.



- 210† New Testament Greek** U 5  
(506) A. 5 cl.  
Prereq.: 103 or 112.  
Intended primarily for pre-theological students.
- 603 Greek Orators** U G 3  
A. 3 cl.  
Prereq.: 2 courses at 200 level.  
Repeatable to a maximum of 6 cr. hrs.  
Schlam.
- 606 Drama** U G 3  
W. 3 cl.  
Prereq.: 2 courses at 200 level.  
Repeatable to a maximum of 6 cr. hrs.  
Davis.
- 608†\* Thucydides** U G 3  
Sp. 3 cl.  
Prereq.: 2 courses at 200 level.
- 609\* Plato** U G 3  
Sp. 3 cl.  
Prereq.: 2 courses at 200 level.  
Barmann.
- 612 Greek Prose Composition** U G 3  
W.  
Prereq.: At least one course at 600 level.  
Barmann.
- 693 Individual Studies in Greek** U G 1-6  
(631) W, Sp.  
Prereq.: 2 courses at 600 level, or permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.  
Passages for reading and topics for investigation will be selected to meet the needs of individual students.  
Schlam, Barmann.
- GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND ABOVE**  
Prerequisites for admission to courses numbered 800 and above are graduate standing and permission of the Chairman.
- 800 Proseminar** G 3  
A.  
Required of all Graduate Students. Students may not receive credit for both Latin 800 and Greek 800.  
An introduction to the materials and methods of research; the history of classical scholarship; individual assignments in bibliographical problems. Forbes.
- 802 Herodotus** G 4  
A.  
Barmann.
- 803 Sophocles** G 4  
Sp.  
Forbes.
- 804 Aristophanes** G 4  
W.  
Jones.
- 810† Structure of the Greek Language** G 3  
(670) W. 3 cl.
- 850 History of Greek Literature** G 4  
(703) A.  
Lectures and assigned reading on the development of Greek literature; required and suggested passages for translation in each author studied. Jones.
- 851 History of Greek Literature** G 4  
(706) W.  
Continuation of 850. Forbes.
- 852 History of Greek Literature** G 4  
(707) Sp.  
Continuation of 851. Barmann.
- 993 Individual Studies in Greek** G 1-4  
A.  
Repeatable to a maximum of 20 cr. hrs.  
Assigned readings; individual research in disciplines such as epigraphy, topography, papyrology, linguistics, etc. Lenardon.
- 995 Seminar** G 5  
A.  
Repeatable to a maximum of 20 cr. hrs.  
Credit in this course will be granted only with the completion of 996.  
The seminar will normally consist of a two-term sequence (A-W, W-Sp); an intensive study of an author of a genre, e.g., Aeschylus, Thucydides, Hellenistic Poetry. Topic for 1967-68: Thucydides. Lenardon.
- 996 Seminar** G 5  
W.  
Prereq.: 995.  
Repeatable to a maximum of 20 cr. hrs.  
Continuation of 995. The seminar will normally consist of a two-term sequence (A-W, W-Sp); an intensive study of an author or a genre, e.g., Aeschylus, Thucydides, Hellenistic Poetry. Topic for 1967-68: Thucydides. Lenardon.
- 999 Research** G Arr.  
A, W, Sp.  
Repeatable.  
Research for thesis and dissertation purposes only.

## Health Education

Offices: (Men) 124 Physical Education Building, 337 West 17th Ave. (Women) 315A Pomerene Hall, 1760 Neil Avenue.  
PROFESSORS †ALLENBAUGH, BEYER, and CUSHMAN; ASSOCIATE PROFESSORS †FOGLE and KAPLAN; ASSISTANT PROFESSOR †CARROLL; INSTRUCTOR HUKILL.

- 101 Hygiene** U 1  
(400) A, W, Sp. 1 cl., 1 lab. hr.  
Reqd. of all freshmen except those who take 200. Not open to majors or minors in Phys. Ed., and Dent. Hyg. Ed.  
Designed to influence knowledge, attitudes, and behavior related to individual health.

- 102 First Aid** U 1  
(479) A, W, Sp. 2 cl., lab.  
A consideration of first aid practices to the injured. Completion leads to Red Cross certificates in first aid.
- 103 Health for the College Student** U 3  
A, W, Sp. 3 cl.  
May be substituted for Health Ed. 101 to fulfill University requirement.  
A study of student health problems. Designed to foster understandings and attitudes needed for intelligent decision-making related to present and future health needs.
- 200 Hygiene** U 5  
(510) A, W, Sp. 5 cl.  
Reqd. of all students in Health Ed., Dent. Hyg. Ed., and Phys. Ed. curricula.  
Designed to establish a basis for positive health and efficiency through a consideration of various conditions and factors which affect health.  
a. Men.  
b. Women.
- 201 Current Concepts in Community Health** U 3  
W, Sp. 3 cl.  
Prereq.: 101 or equiv.  
A study of community health programs, the need for them, the problems and issues involved, and how these problems can be solved.
- 300 Health Education for Elementary Teachers** U 3  
(609) A, W, Sp. 3 cl.  
Prereq.: 101 or equiv. and Psychol. 230. Not open to undergraduate minors or majors in Phys. Ed., or Health Ed.  
The teacher's responsibility for health of school child. Screening, referral, vision and hearing, nutritional problems, instructional programs, emergency care, teacher's health.
- 301 Health Education for Secondary Teachers** U 3  
(610) A, W, Sp. 3 cl.  
Prereq.: 101 or equiv., Psychol. 230 and Educ. 435. Not open to students preparing for secondary school teaching of Health Ed. or Phys. Ed.  
A study of health problems as they relate to the individual secondary school student. Emphasis on the role of the teacher in the secondary school health program.
- 501 The School Health Program** U 5  
W. 5 cl.  
A consideration of the total school health program including healthful school living, health services, and the teaching of health.
- 602 Personal Health Problems** U G 3  
(641) A. 3 cl.  
An advanced course in personal health problems. Extensive reading and reporting in selected health areas. Cushman, Beyrer.
- 603 Current Progress in Disease Control** U G 2  
(705) Sp. 2 cl.  
Prereq.: 4th yr. or grad. standing in a health science area.
- 610 The Teaching of Health** U G 4  
(644) W, Sp. 5 cl.  
Prereq.: 200 or equiv.  
Principles, methods, materials, and resources involved in teaching health. Direct, correlated and integrated curriculum patterns. Individual teaching experience. Cushman, Beyrer, Carroll.
- 620 Organizational Relationships in School Health Education** U G 3  
(645) W, Sp. 3 cl.  
Prereq.: 621.  
The relation of the school health program to the total community health program. Official and non-official health agencies are studied. Beyrer.
- 621 School Health Services** U G 3  
(692) A, W. 3 cl.  
Prereq.: 200 or equiv.  
Consideration of healthful school living and health services, including health appraisal, counseling, educational adjustments, communicable diseases, and emergency programs. Cushman.
- 690 School Health Education Workshop** U G 4  
(799) Su. 3 wk. workshop.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 8 cr. hrs.  
A team approach to school health education with emphasis on instruction, health services, environment, methods, materials, resources, evaluation, interrelationships, and others. Individual and group study. Fogle.
- 693 Individual Studies in Health Education** U G 1-4  
(701) A, W, Sp.  
Prereq.: 4th yr. or grad. standing and permission of adviser.  
Investigation of selected professional problems.
- 994 Problems in School Health Education** G 3  
(820) A, W, Sp.  
Advanced problems in school health education. Individual or group participation.  
.01 Curriculum in Health Education  
Su.  
Cushman.  
.02 Survey of Research in Health Education  
W.  
Beyrer.  
.03 Evaluation in Health Education  
Sp.  
Cushman.
- 995 Seminar in School Health Education** G 2  
(801) A. 2 cl.  
Beyrer, Cushman.



**996 Comparative Study of World Health Problems G 3***A, W. 3 cl.**Prereq.: 101 or 200 or 501.*

A study of world health problems, their influences on all people, the variety and magnitude of problems, and the methods being used to solve them.

**999 Research in Health Education G Arr.***(950) A, W, Sp.*

Research for thesis and dissertation purposes only.

**History**

Office: 108 University Hall, 216 North Oval Drive.

PROFESSORS †COLES (Chairman), †BREMNER, †CHAPIN, †DORPALEN, DULLES (Emeritus), †FISHER, †GRIMM, HILL (Emeritus), †McDONALD, †MORLEY, †PEGUES, †POIRIER, †RAGATZ, †ROBERTS, ROSEBOOM (Emeritus), SIMMS (Emeritus), †WEISENBURGER, and WOODRING (Emeritus); VISITING PROFESSORS †ANKORI, †HANCOCK, and †HARTJE; ASSOCIATE PROFESSORS †BRODY, †BURNHAM, †EASTMAN, FLANDERS (Mansfield), †RULE, †TASKE, and †YOUNG; ADJUNCT ASSOCIATE PROFESSOR †FULLMER; ASSISTANT PROFESSORS †BOWERS, †CURRAN, HARE (Emeritus), †LARMOUR, REINHARDT (Lima), SKEEN (Mansfield), TENZYHOFF (Mansfield), VAN HORN (Lima), †WILKIE, and ZAHNISER.

**101 History of Western Civilization U 5 (1500 to 1815)***(401) A, W, Sp. 5 cl.**Either 101 or 102 may be taken independently.**Not open to students with credit for 121.*

Renaissance; Reformation; Spanish culture; Elizabethan England; French classicism, and early modern natural science; national monarchies, absolutism, and mercantilism; the Enlightenment; the French Revolution; Napoleon.

**102 History of Western Civilization U 5 (1815 to the Present)***(402) A, W, Sp. 5 cl.**Either 101 or 102 may be taken independently.**Not open to students with credit for 122 or 123.*

Continuation of 101. Restoration; reaction; democracy; economic and political radicalism; Romanticism; nationalism; imperialism; World War I; post-war Europe.

**103 History of the United States U 5 (1763 to 1877)***(403) A, W, Sp. 5 cl.**Not open to students with credit for 121 or 122 or 230.*

The general political, constitutional, and economic development of the United States from the beginning of the Revolutionary era to the end of the Civil War.

**104 History of the United States U 5 (1877 to Present)***(404) A, W, Sp. 5 cl.**Not open to students with credit for 122 or 123 or 230.*

A continuation of 103. The two provide a sequence but either may be taken independently as an elective.

**121 The Western World in Modern Times U 5***(421) A, W, Sp. 5 cl.**Not open to students with credit for 101 or 103 or 230.*

From the beginning of modern times through the first third of the nineteenth century. A course in the history of modern Europe and the United States. Emphasis is placed on the history of the United States in a world setting. Major themes include the development of representative government and democracy, the rise of capitalism, the role of organized religion, and the impact of scientific development.

**122 The Western World in Modern Times U 5***(422) A, W, Sp. 5 cl.**Not open to students with credit for 102 or 103 or 104 or 230.*

Continuation of 121. The nineteenth century.

**123 The Western World in Modern Times U 5***(423) A, W, Sp. 5 cl.**Not open to students with credit for 102, or 104 or 230.*

Continuation of 122. The twentieth century.

**210 Great Figures in Greek and Roman Antiquity U 3***(511) W. 3 cl.*

A biographical approach to Antiquity through an examination of the lives of eight prominent men. Readings in ancient and modern biographies. McDonald.

**211 Great Figures of Modern Europe U 3***(512) Sp. 3 cl.*

A study of modern European history through an examination of the lives and times of great figures. Rule.

**212 Great Figures in British History U 3***(510) W. 3 cl.*

British history since 1485 as illustrated in the lives of notable figures. Roberts.

**213† The History of the Medieval Church U 3***(517) Sp. 3 cl.*

The rise of the Christian church and the papacy; the Church Fathers; investiture controversy; heresy and monasticism; mysticism; the crisis of the late medieval church. Pegues.

**215 Contemporary Europe U 5 (1914 to the Present)***(590) A, W. 5 cl.*

World War I; political, social, and economic developments of the interwar period; Communism, Nazism; World War II; Europe between East and West; moves toward unification. Dorpalen, Larmour.

**220 Russian Civilization U 5***(520) Su. 5 cl.*

A survey of Russian civilization from earliest times to 1917. Geography, peoples, culture, social, political and religious institutions, and the impact of Westernization. Curran.

- 230† American Civilization** U 5  
(504) Sp. 5 cl.  
Not open to students with credit for 103 or 104 or 121 or 122 or 123.

A survey emphasizing the origin and development of basic ideals and institutions, continuing problems of American democracy, and the U.S. and world affairs. *Coles*.

- 231 Great Figures in American History** U 3  
(513) A, W, Sp. 3 cl.

Main trends of American development through the medium of biography. Historical background, comparison and contrast of leading figures, and analysis of motivation and character. *Bowers, Coles*.

- 232 Recent History of the United States (1898-1928)** U 3

(537) A, W, Sp. 3 cl.  
May not be taken for credit by undergraduate Hist. majors.

The impact of modern industrialism upon American imperialism, society, government, and foreign policy. *Laissez-faire* and government regulation, the Progressive movement, and the First World War.

- 233 Recent History of the United States (since 1928)** U 3

(538) A, W, Sp. 3 cl.  
May not be taken for credit by undergraduate Hist. majors.

Continuation of Hist. 232, but may be taken separately. Prosperity and depression, the New Deal, the United States in international affairs, the Second World War.

- 240 Latin America in the Twentieth Century** U 3  
W. 3 cl.

The history of Latin America in the twentieth century.

- 301 Major Influences in the History of Western Civilization** U 3

(693) Sp. 2 cl.

Offered by senior members of the staff and designed to acquaint the student with problems in the interpretation of the history of western civilization. *Rule*.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 AND 700

Unless otherwise indicated the prerequisites for 600 and 700 courses are four quarter courses in the social science field, of which at least two must be in history.

- 600†\* The Ancient History of the Near East** U G 3

(653) Sp. 3 cl.

The ancient history of Egypt, Babylonia, Assyria, and adjacent cultures. Readings in the sources in translation. *McDonald*.

- 601 Greek History** U G 5  
(655) A. 5 cl.

A history of Greece from the early Minoan period to the age of Demosthenes and Philip of Macedon. Readings in the Greek historians in translation. *McDonald*.

- 602\* Greek Civilization** U G 3  
(649) Sp. 3 cl.

The Hellenistic Age: A study of Greek institutions from Alexander the Great to the Roman conquest. Readings in the sources in translation. *McDonald*.

- 603 Roman History** U G 5  
(656) Sp. 5 cl.

A history of Rome from the early Bronze Age to the fall of the Roman Republic. Readings in the Roman historians in translation. *McDonald*.

- 604\* Roman Civilization** U G 3  
(650) A. 3 cl.

A study of the Early Roman Empire, beginning with the Augustan Age and ending with Marcus Aurelius. Readings in the sources in translation. *McDonald*.

- 606 Medieval Civilization** U G 5  
(619) A. 5 cl.

The decline of the Roman Empire; the rise of Christianity; analysis of feudalism and manorialism; the Great Economic Revival, and the origins of Western Society. *Pegues*.

- 609 The Renaissance** U G 3  
(607) W. 3 cl.

The literary, artistic, and intellectual achievements primarily of Renaissance Italy against the economic, political, and social developments in western Europe. *Grimm*.

- 610 The Reformation** U G 5  
(608) A. 5 cl.

The rise and growth of Protestantism and the Catholic reformation of the sixteenth century against the economic, political, and social developments in western Europe. *Grimm*.

- 612 Europe 1660-1789** U G 5  
(617) W. 5 cl.

A study of the rise of the absolute state, the changing diplomatic alignments, and the enlightenment. *Rule*.

- 613 The French Revolution and Napoleon** U G 5

(624) Sp. 5 cl.

The background of the Revolution; the social bases and political schisms of the first three Revolutionary governments, 1789-1795; the program and role of Napoleon. *Rule*.

- 614 Europe 1815-1914** U G 5  
(620) W. 5 cl.

Nationalism, the democratic movement, economic growth, imperialism, and cultural advance from the Congress of Vienna to World War I. *Rogel*.

- 615 France 1815-1914** U G 5  
A. 5 cl.

France's transformation from a rural, traditional society to a modern, industrial society, and the relation of this transformation to 19th century political and intellectual movements. *Larmour*.

- 616 France in the Twentieth Century** U G 5  
Sp. 5 cl.

The impact on France of two world wars, the depression and decolonization, with emphasis on the breakdown of the political system and the emergence of a new society from the wreckage of the old. *Larmour*.

- 618 Modern Germany (1815 to the Present)** U G 5  
(629) W. 5 cl.



Political, social, economic, and cultural developments; the national and liberal movements; unification; Empire; Weimar Republic; Nazi Regime; present-day Germany. *Dorpalen.*

**620 European Diplomacy, 1871-1939 U G 3**  
(630) *W. 3 cl.*

Imperialism and the Alliance systems leading to World War I; the Paris Peace Conference, and the political and economic diplomacy prior to World War II. *Fisher.*

**621 The Rise of Modern Physical Science U G 5**  
*A. 5 cl.*

*Prereq.: No prereq. other than Jr. standing.*

The physical sciences from the end of the Enlightenment to 1904 and their intellectual and institutional interrelationships with Western society.

**622 Intellectual History of Nineteenth Century Europe U G 5**  
(687) *Sp. 5 cl.*

Ideas and ideologies in their social and economic setting, including laissez-faire liberalism, Darwinism and the various schools of socialism. *Poirier.*

**628 Africa and the Western World in the Nineteenth and Twentieth Centuries U G 5**  
(622) *W. 5 cl.*

Economic penetration, the conflict of cultures, political developments, and social advance.

**629 Asia, the Pacific Basin, and the Western World in the Nineteenth and Twentieth Centuries U G 5**  
(623) *Sp. 5 cl.*

The rise and decline of colonialism and contemporary problems.

**630† Medieval England U G 5**  
(609) *W. 5 cl.*

England from the Roman conquest to 1485; Anglo-Saxon society and institutions; the Norman conquest; law and parliament; social, intellectual and economic growth of the English people. *Pegues.*

**631 Tudor and Stuart England U G 5**  
*Sp. 5 cl.*

The religious, political, economic, imperial, and intellectual development of the English people from 1485 to 1714, with special attention to the constitutional struggles of the seventeenth century. *Roberts.*

**632† England in the Eighteenth and Nineteenth Centuries U G 5**  
(610) *A. 5 cl.*

The course of political, social, and intellectual change, of industrial and commercial growth of Hanoverian, Victorian, and Edwardian England. *Poirier.*

**633 England in the Twentieth Century U G 5**  
(686) *W. 5 cl.*

A study of Britain since 1900 with special emphasis on the rise of the Labour party and the development of the social welfare state. *Poirier.*

**635 History of Russia (to 1801) U G 3**  
(675) *A. 3 cl.*

*Not open to students who have 5 cr. hrs. for Hist. 636.*

A survey from the origins of the Russian state to the end of the eighteenth century. *Curran, Morley.*

**636 History of Russia (1801-1914) U G 3**  
(676) *W. 3 cl.*

A survey from the accession of Alexander I to the outbreak of the First World War. *Morley.*

**637 Soviet Russia U G 3**  
(677) *Sp. 3 cl.*

Beginning with the background and events of the revolution of 1917, this course analyzes developments in Russian history from World War I to the present. *Morley, Curran.*

**638† Russian Intellectual History U G 5**  
(681) *W. 5 cl.*

A survey of the main currents of Russian social, political, economic and philosophical thought in the nineteenth century. Liberalism, Conservatism and Socialism. *Curran.*

**639\* Modern Poland U G 3**  
(678) *A. 3 cl.*

While several background lectures deal with the partitions of Poland and the revolutions of the nineteenth century, emphasis is placed on the period since 1918. *Morley.*

**640 China Under the Ch'ing Dynasty, 1644-1912 U G 5**  
*A. 5 cl.*  
*Prereq.: 645.*

History of the last dynasty of the imperial period, with emphasis on China's response to the West in the nineteenth century.

**641 The Rise of Islam and the Spread of Muslim Civilization U G 3**  
(626) *A. 3 cl.*

Life and teachings of Muhammad; Umayyad and Abbasid empires; the Crusades, Islamic culture and learning through the ages; the decline under the Mongols. Terminal date, 1517. *Fisher.*

**642 The Rise and Fall of the Ottoman Empire U G 3**  
(627) *W. 3 cl.*

A study of the significance of the Middle East with respect to Europe from the thirteenth century to World War I. *Fisher.*

**643 The Middle East since 1914 U G 3**  
(628) *Sp. 3 cl.*

National and international problems following the collapse of the Ottoman empire; the Turkish Republic; the state of Israel; Arab unity; and the conflict between East and West. *Fisher.*

**644 History of the Far East to 1800 U G 5**  
(694) *A. 5 cl.*

The development of the civilizations of China, Korea, and Japan from the earliest time to the beginning of large-scale Western influence. *Minear.*

**645 History of the Far East since 1800 U G 5**

(695) W. 5 cl.

The transformation of China, Korea, and Japan in modern times under the impact of the West. *Minear.*

**646† History of Modern China U G 5**

(698) Sp. 5 cl.

Prereq.: 645.

A study of China's response to the problems generated by contact with the West, emphasizing the rise of nationalism and communism in the twentieth century. Political, social and intellectual history.

**647 History of Traditional Japan U G 5**

W. 5 cl.

Prereq.: 644.

Problems regarding the political, intellectual, and institutional history of Japan prior to the arrival of Perry (1851). *Minear.*

**648 History of Modern Japan U G 5**

(651) Sp. 5 cl.

Prereq.: 645.

Political, social and intellectual history of Japan from the beginning of the Meiji Period (1868) to the present. *Minear.*

**649 The Oral History of Twentieth-Century Latin America U G 5**

Sp. 5 cl.

Prereq.: Speaking and reading knowledge of Spanish or permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Interdisciplinary research and preparation for field work of the Oral History Center for Latin America are undertaken on themes of (a) biography and (b) personalism, ideology, and nationalism. *Wilkie.*

**650 Spain U G 5**

Sp. 5 cl.

The unification of Spain under Ferdinand and Isabella; the Golden Age; Enlightened Despotism of the 18th century; the Napoleonic Wars; the Generation of 1898; the Republic and the Civil War; the regime of Francisco Franco.

**651 Latin America U G 3**

(645) A. 3 cl.

The Mayan, Aztec, and Inca Empires; the Spanish and Portuguese conquest; and the development of Hispanic civilization in the New World. *TePaske.*

**652 South America Since Independence U G 5**

(646) Sp. 5 cl.

Nation-building in the South American republics during the nineteenth and twentieth centuries with special emphasis upon Argentina, Uruguay, and Brazil. *Wilkie.*

**653 Northern Latin America Since Independence U G 5**

(679) W. 6 cl.

Special emphasis upon social and economic outcomes of the main revolutionary movements. *Wilkie.*

**654† Intellectual History of Latin America in the National Era U G 5**

A. 5 cl.

Prereq.: 6 hrs. of 800 level courses in the Latin America area or permission of instructor.

A study of the impact of thought upon the organization of Latin American society in different epochs.

**655 Social and Economic History of Latin America in the National Era U G 5**

A. 5 cl.

Prereq.: 6 hrs. of 800 level courses in the Latin America area or permission of instructor.

A study of patterns in the history of race, class, land, industry, and foreign influence. *Wilkie.*

**656 The American Colonies U G 5**

(644) A. 5 cl.

The transplanting of European civilization to North America, the resultant international rivalries, and the political, social, and economic life of the English colonies to 1763. *Bowers, Chapin, Coles.*

**658 The American Revolution and New Nation, 1763-1800 U G 5**

(648) W. 5 cl.

A continuation of 656 but may be taken separately. Primary emphasis is on social, intellectual, and economic factors. *Bowers, Coles, Zahniser.*

**659 Jefferson and Jacksonian Democracy, 1800-1840 U G 5**

Sp. 5 cl.

A continuation of 658 but may be taken separately. Primary emphasis on ideological, cultural, and political factors. *Bowers, Chapin, Coles.*

**660 The Westward Movement since 1783 U G 5**

(641) Sp. 5 cl.

The westward spread of settlement and the influence of the westward movement on American development. *Young.*

**661 The Slavery Controversy in the United States U G 3**

(633) A. 3 cl.

The social system of the Old South; the various aspects of the controversy; secession and the impact of war. *Dillon.*

**662 Reconstruction and the New South (1863 to the Present) U G 3**

(634) W. 3 cl.

The controversy over reconstruction; the social and economic readjustments in Southern States during and after reconstruction. *Dillon.*

**664 The Emergence of Modern America, 1865-1898 U G 5**

(668) Sp. 5 cl.

An intensive study of the political, social, and cultural transformation of the United States in the late nineteenth century. *Weisenburger.*



**665 United States in the Twentieth U G 3  
Century, 1900-1919***A. 3 cl.**Prereq.: 123 or 104.**Open to graduate students by permission of the instructor.*

An intensive study of the United States during the Progressive Era and World War I. *Bremner, Brody, Burnham.*

**666 United States in the Twentieth U G 3  
Century, 1920-1939***W. 3 cl.**Prereq.: 123 or 104.**Open to graduate students by permission of the instructor.*

An intensive study of the United States during the Era of Normalcy and the New Deal. *Bremner, Brody, Burnham.*

**667 United States in the Twentieth U G 3  
Century, 1940-present***Sp. 3 cl.**Prereq.: 123 or 104.**Open to graduate students by permission of instructor.*

An intensive study of the United States during World War II and the Cold War Era. *Bremner, Brody, Burnham.*

**668 American Military Policy U G 5***(618) A. 5 cl.*

The development of American military policy, 1763 to the present, in relation to its political, economic, and social implications. *Coles.*

**670 American Foreign Policy to 1914 U G 5***(635) Sp. 5 cl.*

Emphasis on these topics: the revolution, neutral rights, the Monroe Doctrine, continental expansion, the Civil War, overseas expansion, Far Eastern policy. *Zahniser, Green.*

**671 American Foreign Policy U G 5  
Since 1914***(636) A. 5 cl.*

Emphasis on these topics: U.S. relations with Europe, with the Far East and with Latin America since 1914. *Zahniser, Green.*

**672 Social and Economic History U G 5  
of the United States, 1815-1865***(642) A. 5 cl.*

The development of economic institutions and their relation to economic growth and to movements for social and political reform. *Young.*

**673 Social and Economic History U G 5  
of the United States, 1865-1914***W. 5 cl.*

The development of an integrated national economy and society; its extensive and intensive expansion. *Young.*

**674 Social and Economic History U G 5  
of the United States, 1914-  
Present***Sp. 5 cl.*

The development of social and economic institutions for a society characterized by high mass consumption; the increasing role of government in the economy. *Young.*

**675 Constitutional History of the U G 5  
United States***(631) W. 5 cl.*

Problems involved in the constitutional growth and development of the United States from the struggle for independence to the present. *Chapin.*

**676 The Influence of Immigrant U G 5  
Groups upon United  
States History***(639) W. 5 cl.*

The share of different immigrant groups in the building of the nation, from the colonial period to the present. *Weisenburger.*

**677† Studies in the History of U G 3  
Philanthropy and Social Welfare***Sp. 3 cl.**Prereq.: 104 or 123 or permission of instructor.*

Major influences in American philanthropy and social welfare since the colonial period. *Bremner.*

**678† American Social Thought, U G 5  
1890-1929***(696) W. 5 cl.**Prereq. 104 or 123.**Not open to students with credit for (692).*

Philosophy and institutions of social reform in the United States in the late nineteenth and early twentieth century. *Bremner.*

**679† American Social Thought U G 3  
Since 1929***(697) Sp. 3 cl.**Prereq. 104 or 123.*

A historical examination of trends in American social thought and criticism since the Great Depression. *Bremner.*

**680† History of American Science U G 3  
Before Darwin***(673) A. 3 cl.*

Beginnings and flowering of scientific inquiry in colonial America; impact of the Enlightenment; coming of technology and expansion of science in early nineteenth-century America. *Burnham.*

**681 History of American Science U G 3  
Since Darwin***(674) W. 3 cl.*

The Darwinian Period in America; positivism and pragmatism; the rise of twentieth-century science; American scientific leadership; role of the scientist in twentieth-century America. *Burnham.*

**682† Political Parties in the U G 5  
United States***(643) Sp. 5 cl.*

The origin and growth of national parties and the history of party struggles with emphasis upon presidential elections.

**683 The History of Ohio U G 3***(689) A. 3 cl.*

A general survey of state history—social, economic, religious, and political—from the Indian period to the present time. *Weisenburger.*

**693 Individual Studies in History U G 1-3**  
(700) A, W, Sp.

*Prereq.: Permission of instructor.*

Individual study in some field of historical development; designed to allow the student to work upon a problem in which he is particularly interested.

**694 Special Group Studies in History U G 1-5**

A, W, Sp.

*Repeatable to a maximum of 15 cr. hrs.*

The investigation of particular problems in various fields of history.

**715† The Second Commonwealth U G 3**  
A. 3 cl.

The restoration of Jewish statehood following the first Babylonian Exile and the history of Palestinian Jewry and of the Jewish Diaspora down to the second century A.D.

**716† The Jewish Community under Medieval Christianity U G 3**

A. 3 cl.

The legal, social, economic, and cultural position of the Jews in the Late Roman Empire and in Western Europe from the 4th century A.D. to 1500.

**717† Jewry and Judaism in the Orbit of Islam U G 3**

A. 3 cl.

History of the Jews in the Near East and North Africa from the Arab conquests to about 1500.

**718† Jews in the Western World in Modern Times U G 3**

W. 3 cl.

Changing patterns of Jewish life since the Jews' struggle for Emancipation; migration movements and the shift of Jewish centers in Europe and the New World.

**719† The Jewish Settlement in Palestine from the Ottoman Conquest to Modern Times U G 3**

Sp. 3 cl.

The flourishing Palestinian Jewish Center in the 16th century; Jewish immigration to Palestine; rise of modern Zionism; the British Mandate, and the State of Israel.

**720 History of Ancient Israel U G 3**  
A. 3 cl.

The rise of the Jewish nation and religion in the Ancient Near East; settlement in Canaan; the Israelite and Judean monarchies until their conquest by Assyria and Babylonia.

**721 The World of the Talmud U G 3**  
A. 3 cl.

The development of Jewish law and institutions in Palestine and Babylonia after the destruction of the Second Commonwealth; Rabbinic Judaism and diasporic Jewish self-government.

**722 Jews in the Mediterranean World U G 3**

W. 3 cl.

East Mediterranean Jewry under the Byzantine Empire, its successor states, and under the Ottoman Turks; the Jews in Italy; rise and fall of Spanish Jewry.

**723 Jews in Eastern Europe U G 3**  
W. 3 cl.

East European Jewish communities: their origin and function within medieval Polish society; self-governing institutions of Polish and Lithuanian Jewry; the 'Jewish Question' in Tsarist Russia.

**724 Messianic and Sectarian Movements in Jewry U G 3**

Sp. 3 cl.

The history, doctrines, and polemics of the secessionist groups in medieval Jewry from the 7th to the 18th centuries.

**730 Studies in European History: 1815-1914 U G 3**

(789) Sp. 1 cl.

*Open only to graduate students and by permission to seniors majoring in Hist.*

Political and social impact of Industrial Revolution; authoritarianism vs. liberalism; Church vs. State; nationalism; imperialism. Emphasis on methods of historical research and documentary analysis. *Dorpalen*.

**731 Studies in European History: 1914 to the Present U G 3**

(790) A, Sp. 1 cl.

*Prereq.: Grad. standing, or 4th yr. majors in Hist. with permission of instructor.*

Political, social, and economic developments: World Wars I and II; Communism, Nazism; present-day Europe. Emphasis on methods of historical research and documentary analysis. *Dorpalen*.

**740† Studies in Russian History U G 3**  
(Catherine the Great through the Crimean War, 1762-1855)

(771A) W. 2 cl.

*Prereq.: 6 cr. hrs. of Russian hist. or permission of instructor.*

An intensive study of problems in selected periods of Russian history. *Morley*.

**741 Studies in Russian History U G 3**  
(Alexander II through the Bolshevik Revolution, 1855-1917)

(771B) Sp. 2 cl.

*Prereq.: 6 cr. hrs. of Russian hist. or permission of instructor.*

An intensive study of problems in selected periods of Russian history. *Morley*.

**783 Honors Course U 3-5**  
(705) A, W, Sp.

*Prereq.: 4th yr. standing and 40 cr. hrs. in Hist. courses with a grade of A in at least half of the Hist. courses and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Honors Committee of the College. At least 2 qtrs. are required of candidates for the degree Bachelor of Arts with Distinction in History. Failure to receive a grade of B in this course is a disqualification for special honors.*

*Repeatable to a maximum of 15 cr. hrs.*

Informal conferences to allow full scope to the initiative of the student. A special topic is assigned and results are tested by papers and special examinations.



- 800 Seminar in European History** G 3  
(809) A. 1 cl.  
Prereq. or concur.: 812.  
Research topic to be announced. Grimm.
- 801 Seminar in European History** G 3  
(810) Sp. 1 cl.  
Prereq. or concur.: 812.  
Research topic to be announced. Dorpalen.
- 802 Seminar in European History** G 3  
(811) W. 1 cl.  
Prereq. or concur.: 812.  
Morley.
- 803 Seminar in European History** G 3  
(815) A. 1 cl.  
Prereq. 812.  
Larmour.
- 804 Seminar in European History** G 3  
(816) Sp. 1 cl.  
Prereq. 812.  
Research topic to be announced. Poirier.
- 805 Seminar in European History** G 3  
(817) W. 1 cl.  
Prereq. or concur.: 812.  
Rule.
- 811 Introduction to Historical Research in American History** G 3  
(812A) A. 3 cl.  
Prereq.: 1st qtr. Master's degree candidates in American Hist.  
A practice course dealing with the problems involved in the preparation of the Master's thesis. Weisenburger.
- 812 Introduction to Historical Research in European History** G 3  
(812B) A. 3 cl.  
Prereq.: 1st qtr. Master's degree candidates in European Hist.  
A practice course dealing with the problems involved in the preparation of the Master's thesis.
- 813 Great European Historians** G 3  
A, Sp. 1 cl.  
A study of the leading historical writers and schools of Europe, with selected readings from representative writers. Roberts.
- 814 Great American Historians** G 3  
W. 1 cl.  
A study of the leading American writers and schools of history.
- 845 Seminar in East Asian History** G 3  
W. 1 cl.  
Prereq.: 646 and ability to use the Chinese language in research.  
Techniques and tools of research in modern Chinese History; introductory readings in Ch'ing documents.
- 850 Seminar in History** G 3  
(825) A, W, Sp. 1 cl.  
Prereq.: Permission of the Graduate Chairman and the Chairman of the department.  
Research topic to be announced.
- 862† Charters of European Jewry: From Carolingian Times to the 18th Century** G 3  
A. 1 cl.  
Ankori.
- 863 The Jewish Community** G 3  
Sp. 1 cl.  
Studies in the institutional history of Jewry through the ages. Ankori.
- 864† Jewish Historiography** G 3  
W. 1 cl.  
Ankori.
- 865† Two Quarter Seminar in American History** G 3  
(819) W. 1 cl.  
Prereq.: 811 and permission of instructor. 865 must be followed by 868.  
Bremner.
- 866† Two Quarter Seminar in American History** G 3  
(820) Sp. 1 cl.  
Prereq. 811, 865, and permission of instructor.  
Bremner.
- 867 Seminar in American History** G 3  
(821) A, W, Sp. 1 cl.  
Prereq. or concur.: 811.  
Research topic to be announced. Brody, Coles, Weisenburger.
- 868 Seminar in American History** G 3  
(822) A. 1 cl.  
Prereq. or concur.: 811.  
Research topic to be announced. Bowers, Chapin.
- 869 Seminar in American History** G 3  
(823) A, W. 1 cl.  
Prereq. or concur.: 811.  
Research topic to be announced. Coles, Young.
- 870 Seminar in American History** G 3  
(824) A. 1 cl.  
Prereq. or concur.: 811.  
Research topic to be announced. Zahniser.
- 871 Recent History of the United States (1898-1928)** G 5  
(737) A. 5 cl.  
The impact of modern industrialism upon American imperialism, society, government, and foreign policy. *Laissez-faire* and government regulations, the Progressive movement, and the First World War. Bremner, Brody, Burnham.

**872 Recent History of the United States (since 1928) G 5**(738) *W. 5 cl.*

Continuation of Hist. 871, but may be taken separately. Prosperity and depression, the New Deal, the United States in international affairs, and the Second World War. *Bremner, Brody, Burnham.*

**880 History of Psychiatric Concepts G 1***Sp. 1 cl.**Prereq.: Permission of instructor.*

Psychiatric concepts and practices in their intellectual and social milieu from the Enlightenment to the twentieth century. *Burnham.*

**899 Interdepartmental Seminar G 1-5***A, W, Sp.**(See under Interdepartmental Seminars.)***999 Research in History G Arr.**(950) *A, W, Sp.*

Research for thesis or dissertation purposes only.

## Home Economics

*Office: 229 Campbell Hall, 1787 Neil Avenue.*

PROFESSORS *ISCOTT (Director)*, *DALRYMPLE*, *DEACON*, *DIRKS*, *GILMORE*, *HENDRICKSON*, *HEYER*, *JOHNSON*, *NEWARK*, *PRUDENT*, and *WILSON*; ASSOCIATE PROFESSORS *ALEXANDER*, *BEARD*, *GREEN*, *HAAS*, *HARGER*, *LAPITSKY*, *LEWIS*, *LLOYD*, *MALOC*, *MEACHAM*, *MILLICAN*, *MOUNTNEY*, and *VIVIAN*; ASSISTANT PROFESSORS *BLAKEMORE*, *BLOOM*, *EVERHART*, *HERR*, *HUNT*, *MONTEI*, *A. SMITH*, *TAPSCOTT*, and *TAYLOR*; INSTRUCTORS *BAILEY*, *CREMER*, *DICKERSCHIED*, *GOLDSBERRY*, and *J. SMITH*.

The courses in Home Economics may be grouped as follows:

Family and Child Development—360, 362, 363, 462, 463, 589.09, 593.10, 594.10, 598, 662, 663, 667, 690.10, 794.10, 860, 861, 862, 893.10, 999

Food and Nutrition—110, 310, 313, 314, 413, 589.01, 589.02, 593.01, 593.02, 594.01, 594.02, 596, 610, 612, 615, 616, 690.01, 690.02, 711, 794.01, 794.02, 802, 810, 813, 816, 893.01, 893.02, 999

Home Economics Education—441, 442, 443, 589.08, 589.10, 593.09, 594.09, 690.09, 794.09, 840, 841, 842, 843, 844, 845, 846, 893.09, 999

Management, Housing, and Equipment—228, 320, 322, 325, 326, 327, 328, 422, 423, 427, 589.05, 589.06, 593.05, 593.06, 593.07, 594.05, 594.06, 594.07, 622, 623, 628, 690.05, 690.06, 690.07, 794.05, 794.06, 794.07, 822, 825, 826, 827, 893.05, 893.06, 893.07, 999

Institution Management—230, 430, 431, 435, 538, 589.07, 593.08, 594.08, 630, 632, 633, 634, 635, 690.08, 794.08, 830, 832, 893.08, 999

Textiles and Clothing—270, 274, 371, 374, 470, 571, 574, 589.03, 589.04, 593.03, 593.04, 594.03, 594.04, 595, 671, 672, 674, 690.03, 690.04, 794.03, 794.04, 870, 871, 872, 893.03, 893.04, 999

General Courses—090, 290, 590

**090 Home Economics Survey U 0**(400) *A. 2 cl.*

*Prereq.: Req'd. of entering freshman and off-campus transfers with less than 45 cr. hrs.*

Orientation to college life, study methods, time budgeting, scheduling and student services.

**110 Elements of Nutrition U 5**(440) *W, Sp. 5 cl.**Not open to students majoring in Home Ec.*

Nutritional needs throughout the life cycle. *Herr.*

**228 Home Furnishings: Furniture U 3**(513) *A. 2 2-hr. cl., 1 2-hr. lab.*

Economic factors and trends in materials, construction and finishes; some experience in reconditioning and other techniques. *Everhart.*

**230 Introduction to Institution Management U 2**(570) *Sp. 1 2-hr. cl.*

Orientation to the fields of food service management and executive housekeeping.

**270 Costume Design U 3**(530) *A, W, Sp. 2 cl., 1 2-hr. lab.**Prereq.: Fine Arts 290 or equiv.*

A critical study of aesthetic principles in relation to costumes.

**274 Clothing: Construction Techniques and Needlecrafts U 5**(507) *W. 2 cl., 2 3-hr. labs. 2-hr. arr.*(514) *Prereq.: Major standing in Oc. Ther.**Not open to majors in Home Ec.*

Experience in activities of needlecraft and clothing construction which may have therapeutic value.

**290 Home Economics as a Profession U 3**(599) *W. 2 1½-hr. cl.*

The nature and status of home economics as a field of study and as a profession. *Scott.*

**310 Fundamentals of Nutrition U 5**(548) *A, W, Sp. 5 cl.**Prereq.: Chem. 101 and 102 or equiv.**Not open to students with credit for 110.*

Basic information in the science of nutrition as applied to man. *Herr.*

**313 Food in Different Cultures U 3**(555) *A. 3 cl.*

*Prereq.: 310 or equiv. recommended; 10 cr. hrs. of social science.*

Food practices of selected peoples of the world with consideration of the existing social, cultural and economic conditions.

**314 Food U 5**(549) *A, W, Sp. 2 cl., 3 2-hr. lab.**Prereq.: 10 cr. hrs. Chem.*

Application of chemical and physical principles to food preparation and use. *Green.*

**320 Housing U 3**(510) *A, W, Sp. 3 cl.**Prereq.: 360 or 10 cr. hrs. social science.*

Housing as it affects family living and is in turn affected by family needs, social and economic trends and the physical environment. *Everhart, Blakemore.*



**322 Household Equipment: Introduction U 5**

(506) A, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 15 cr. hrs. of natural science.

Principles involved in the selection, construction, operation, and care of household equipment and their relation to the well-being of the family. *Beard.*

**325† Elements of Homemaking U 3**

(518) A. 3 cl.

Prereq.: 3rd yr. standing.

Not open to majors in Home Ec.

Principles of home management and use of family resources in relation to family well-being. *Newark.*

**326 Home Management: The Family and the Market U 3**

(559) A, W. 3 cl.

Prereq.: 3rd yr. standing and Econ. 201 or equiv.

The market from the family point of view and its relation to home management practices. *Newark.*

**327 Home Management U 5**

(560) A, W, Sp. 5 cl.

Prereq.: 3rd yr. standing and Econ. 201 or equiv.

Management process of utilizing specific resources for family's well-being. *Newark, Lloyd.*

**328 Home Furnishings: Principles U 5**

(512) A, W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: Fine Arts 251 or 290.

Application of art principles to furnishing a home with consideration of aesthetic, economic and social factors affecting choice. *Everhart.*

**360 Family Development U 5**

(562) A, W, Sp. 5 cl.

Prereq.: 10 cr. hrs. of social science.

The dynamics of family interaction at each stage of the life cycle; emphasis on developmental tasks, socio-economic and cultural influences and other family differences. *Taylor, Lehr.*

**362 Introduction to Child Development U 4**

(561) A, W, Sp. 3 cl., 2 morning hrs. arr. for nursery school observation.

Prereq.: Psychol. 100 or equiv. recommended.

Study of the nature, nurture and development of children with emphasis on the preschool years. *Griffing, Lehr.*

**363 Child Development U 5**

(563) A, W, Sp. 5 cl.

Not open to students with credit for 362.

Developmental patterns of children with emphasis on physical, social, and emotional maturation, especially during the formative years; environmental influences and appropriate guidance. *Heye, Hendrickson.*

**371 Textiles U 5**

(505) A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 10 hrs. Chem.

Study of the physical and chemical properties of textiles and their components as they relate to care, performance and consumer satisfaction. *Tapscott.*

**374 Clothing: Design Analysis U 5**

(531) A, W, Sp. 2 cl., 3 2-hr. lab.

Prereq.: 270, 371 and skill in the basic construction processes.

Adaption of standard patterns to individual proportions, flat pattern designing, and application of principles of design and construction in making garments. *Goldberry.*

**413 Foods: Meal Management U 4**

(550) A, W, Sp. 2 cl., 2 3-hr. lab.

Prereq.: 310 and 314.

Nutritional, aesthetic, and social aspects of planning, purchasing, preparing, and serving food to family groups at different income levels.

**422 Household Equipment: The Home Economist in Business U 5**

(580) Sp. 3 cl., 3 2-hr. lab.

Prereq.: 413, 10 cr. hrs. of household equipment, 5 cr. hrs. Speech, or permission of instructor.

Evaluation and development of the individual's qualifications to meet professional requirements of a home economist in businesses related to household equipment. *Bloom.*

**423† Household Equipment U 3**

(619) W. 2 cl., 1 2-hr. lab.

Prereq.: 322, 328 or concur.

Application to home situations of the recent developments in lighting with emphasis on selection, care, and use of home lighting equipment. *Everhart.*

**427 Home Management U 4**

(627) A, W, Sp. 5 cl., lab. hrs. arr.

Prereq.: 327 and senior standing in Home Ec.

Report to Room 166 E, Campbell Hall, to make Application and to check for eligibility at least two qtrs. in advance.

Application and integration of management principles to operation of a household. *Lloyd, Newark.*

**430 Menu Planning for Food-Serving Establishments U 3**

(571) W. 3 cl.

Prereq.: 230 and 413.

Principles and practices of menu planning for school, industrial, and commercial food units; menus planned for each type of institution. *Harger.*

**431 Quantity Food Production and Service U 5**

(631) A, W. 1 2-hr. cl., 3 hrs. lab.

Prereq.: 230 and 413.

Individual experience in application of food preparation principles to quantity production; use and care of large equipment; standardized formulae and costs; service to the public. *Harger, Cremer.*

**435 Principles of Teaching Applied to Institution Management U 4**

(545) Sp. 1 1-hr. cl., 1 2-hr. cl., field experience.

Prereq.: 431, Psychol. 100, and permission of instructor.

Principles of education for students whose professional work will require knowledge of techniques for teaching others in non-school situations.

#### 441 Principles and Methods of Teaching Applied to Home Economics U 5

(541) A, W, Sp. 3 cl., ½ day arr.

Prereq.: 40 cr. hrs. in Home Ec.

Consideration of curriculum, methods of teaching, management, and other problems of the home economics teacher.

#### 442 Supervised Home Economics Teaching U 15

(542) A, W, Sp. Full time for one qtr. for 15 cr. hrs.

Prereq.: 441 plus 55 cr. hrs. in Home Ec.; 2.25 cumulative pt.-hr. ratio two qtrs. immediately preceding.

For vocational certification, students must do their teaching in a vocational center and live in the community.

Registration with the Teacher Placement Service of the College of Education.

Not open to students with credit for 443.

Guided participation in the responsibilities and activities of the Home Economics teacher in the regular day school and extended school program.

#### 443† School-Community Problems of the Home Economics Teachers U 3

(543) Su. 3 cl. arr. hrs. for observation and participation.

Prereq.: 441, 442, and permission of instructor.

For vocational certification only; not open to students with credit for 442.

Responsibilities and activities of the home economics teacher in the extended school program with emphasis on adult education, home experience, related home economics teacher activities. Dirks.

#### 462 Nursery School Activities U 3

(664) A, W, Sp. 3 cl.

Prereq.: 362 or 363; 463 concur.

Application of principles of development to program planning; modification of activities for age level, ability, experience, group and individual needs. Dickerscheid.

#### 463 Nursery School Practicum U 2

(665) A, W, Sp. 1 conf. hr., 2 2-hr. lab.

Prereq.: 362 and 462.

Repeatable to a maximum of 6 cr. hrs.

Participation in the nursery school as a student teacher applying theory covered in 462. Dickerscheid.

#### 470 Clothing: Fashion and the Ready-to-Wear Market U 5

(508) Sp. 5 cl.

Prereq.: 3rd yr. standing.

Fashion, the ready-to-wear market and current developments in the field of textiles and clothing and their relation to satisfying consumer needs. Millican.

#### 538† Executive Housekeeping: Furnishings, Equipment and Maintenance U G 5

W. 5 cl.

Prereq.: 230, 322, 323, and Fine Arts 111.

Principles and standards for planning house departments; selection and arrangement of furnishings and equipment; maintenance and service for various types of institutions.

#### 571 Textiles: Recent Developments U 5

(673) W, Sp. 4 cl., 1 3-hr. lab.

Prereq.: 371 and 374.

Emphasis on new developments; study of standards and testing procedures used in the evaluation of textiles for consumer use; supplemented by laboratory experience. Lapitsky.

#### 574 Clothing U 5

(601) W. 2 cl., 2 3-hr. lab.

Prereq.: 374.

Evaluation and application of design and fashion principles in relation to tailored garments; quality-price relationship; optimum utilization of materials and resources.

#### 589 Field Work in Home Economics U 3, 5 or 15

(585) A, W, Sp.

Prereq.: Senior standing in Home Ec.; 2.25 cumulative pt. hr., and permission of instructor.

Registration 2 qtrs. before scheduling.

Limited to 5 cr. hrs., except in qtrs. and areas indicated below.

.01 Foods	3 or 5
.02 Nutrition	3 or 5
.03 Textiles	5
.04 Clothing. A.	15
.05 Household Equipment	5
.06 Home Management	3 or 5
.07 Institution Management	3 or 5
.08 Home Ec. Education	3 or 5
.09 Family and Child Development	3 or 5
.10 Home Ec. Extension. W. Sp.	15

#### 590 Home Economics Colloquia U 3

W. 3 cl.

Prereq.: Eligibility for Honors Program in Home Ec.

Repeatable to a maximum of 9 cr. hrs.

Subjects will be oriented in different quarters to natural science, social science, and general home economics topics.

#### 593 Individual Studies U 3 or 5

A, W, Sp.

1 or more conf.

Prereq.: Minimum of 6 cr. hrs. in subject matter of problem with cumulative pt. hr. of 2.7 in Home Ec. subjects; permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

.01 Food
.02 Nutrition
.03 Textiles
.04 Clothing
.05 Home Furnishings and Housing
.06 Household Equipment
.07 Management and Family Economics
.08 Institution Management
.09 Home Ec. Education
.10 Family and Child Development

#### 594† Special Group Studies U 3 or 5

A, W, Sp. 3 cl.

Repeatable to a maximum of 10 cr. hrs.

.01 Food
.02 Nutrition
.03 Textiles
.04 Clothing
.05 Housing and Home Furnishings
.06 Household Equipment
.07 Home Management and Family Economics
.08 Institution Management
.09 Home Ec. Education
.10 Family and Child Development



**595† Textiles and Clothing Seminar U 2**  
(680) *W. Sp. 2 cl.*

*Prereq.: 4th yr. and major standing in textiles and clothing.*

Special reports and readings in textiles and clothing which contribute to professional effectiveness and promote integration of information among specialists in the two fields.

**596 Food and Nutrition Seminar U 2**  
(640) *Sp. 2 cl.*

*Prereq.: 4th yr. standing.*

Reports based on current research, recent summaries and articles which give perspective in food and nutrition.

**598 Seminar in Child Development U 2**  
(666) *W. 1 cl.*

*Prereq.: 360, 362 and 589.09.*

Review, interpretation, and evaluation of current literature and research in defined areas, with emphasis on recommended professional standards in group care of children.

**610 Nutrition U G 5**  
*W. 5 cl.*

*Prereq.: 310, Physiol. 311 and Biochem. 511 or 531.*

Modern concepts of normal nutrition. *Green.*

**612 Nutrition: Diet Therapy U G 3**  
*Sp. 3 cl., other hrs. arr.*

*Prereq.: 610 or equiv. or permission of instructor.*

Modern concepts of clinical nutrition and abnormalities treated by modification of the diet. *Prudent.*

**615 Experimental Work in Food U G 5**  
**Preparation**

*A, Sp. 2 cl., 3 3-hr. lab.*

*Prereq.: 314 and Chem. 231 or Biochem. 511 or 531.*

Application of experimental methods to problems involved in preparation of foods. *Prudent.*

**616† Nutrition of Infants and Children U G 3**

*Su. 3 cl.*

*Prereq.: 610.*

Needs of children for good nutrition from the embryonic stage through adolescence. *Prudent.*

**622 Household Equipment: Performance Testing U G 5**

*W. 2 cl., 3 2-hr. lab.*

*Prereq.: 322, 371, or equiv., 5 cr. hrs. of Microbiol. and 10 additional cr. hrs. of natural science.*

Experienced problems on the performance of the major types of household equipment used in the preparation of food. *Bloom.*

**623 Household Equipment: Performance Testing U G 5**

*A. 2 cl., 3 2-hr. lab.*

*Prereq.: 322, 371, or equiv., and 4th yr. standing in Home Ec. or permission of instructor.*

Experience in the techniques and reporting of experimental investigations dealing with household equipment used in laundering and other cleaning processes. *Bloom.*

**628† Selection of Furnishings U G 3**  
**for the Home**

*Sp. 2 cl., 1 2-hr. lab. Field trips arr.*

*Prereq.: 327, 328 and 371.*

Consumers' problems in the selection of home furnishings. *Blakemore.*

**630 Selection of Food and Equipment for Institutions U G 5**

*W. 5 cl.*

*Prereq.: 431 or concur. and Econ. 201.*

Principles and standards for selection of food, equipment, and furnishings in institution food service, arrangement and layout. *Harger.*

**632 Institution Organization and Management U G 5**

*Sp. 3 cl., 6 hrs. lab. arr.*

*Prereq.: 431, 630 and Bus. Org. 500 or permission of instructor.*

Principles of business organization and management and principles of learning applied to the management of food service operations; supervised experience in meal management. *Harger, Cremer.*

**633† School Lunchroom Management U G 3**

*Su. 3 cl., 1 hr. arr.*

*Prereq.: 431 and permission of instructor.*

A general course on management problems in a school lunch program. *Cremer.*

**634 Sanitation for Food Serving U G 3**  
**Establishments**

*Sp. 1 1-hr., 1 2-hr. cl.*

*Prereq.: Microbiol. 607 or equiv.*

Application of principles involved in sanitary food handling; practical problems concerned with protection of health and with prevention of food spoilage and contamination. *Cremer.*

**635 Food Cost Analysis for Institutions U G 3**

(731) *A. 2 2-hr. cl.*

*Prereq.: 431 and Bus. Org. 500 or permission of instructor.*

Records used in large quantity foods service and house units and their use in budgeting and food cost control. *Harger.*

**662 Child Development U G 3**

*W. 3 cl., 2 1-hr. observation periods.*

*Prereq.: 362, Psychol. 550 and Soc. 434.*

Growth and development of children from six through adolescence with emphasis on maturation patterns and individual differences. *Hendrickson.*

**663 Infant Guidance and Care U G 3**

*A. 2 cl., 1 2-hr. lab. arr.*

*Prereq.: 362, Psychol. 550 and Soc. 434.*

Pattern of development during infancy and the second year of life, and responsibilities of adults for providing a home environment favoring optimum development. *Hendrickson.*

**667 Administration of Day Care Centers U G 3**

(762) A. 3 cl.

Prereq.: 462, 463 or equiv.

Program planning to meet developmental level and needs of young children; minimum and recommended standards. *Heys*.

**671† Textiles: Technology U G 3**

W. 1 cl., 2 2-hr. lab.

Prereq.: 571.

Experience in planning and conducting textile tests and in evaluating resulting data; development, present status, and importance of textile testing. *Lapitsky*.

**672 History of Costume and Textiles U G 5**

W. 5 cl.

Prereq.: 571.

A chronological study of costume and textiles from ancient civilization to modern times, with consideration of cultural forces that affected the development. *Millican*.

**674 Clothing: Advanced Design Analysis U G 5**

(604) A, Sp. 2 cl., 3 2-hr. lab.

Prereq.: 374 or equiv.

Creative interpretation of dress design terminating in finished garments developed through the media of flat pattern and draping. *Millican*.

**690 Home Economics Workshop U G 4**

(799) Su. Full time for 3 weeks.

Prereq.: Graduate standing in Home Ec. or a closely related field and permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

Workshops in the following phases:

- .01 Foods
- .02 Nutrition
- .03 Textiles
- .04 Clothing
- .05 Home Furnishing
- .06 Household Equipment
- .07 Home Management
- .08 Institution Management
- .09 Home Ec. Education
- .10 Family and Child Development

**711 Nutrition: History U G 3**

Su. 3 cl.

Prereq.: 610 and permission of instructor.

Persons, discoveries and methods in the evolution of nutrition as a science and a factor in the control of human welfare.

**794 Special Group Studies U G 3 or 5**

A, W, Sp. 3 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

- .01 Food
- .02 Nutrition
- .03 Textiles
- .04 Clothing
- .05 Housing and Home Furnishing
- .06 Household Equipment
- .07 Home Management and Family Finance
- .08 Institution Management
- .09 Home Ec. Education
- .10 Family and Child Development

**802 Seminar in Foods and Nutrition G 3 or 5**

(810) A, W.

Prereq.: 610 or 615 and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

(Topics listed 265B Campbell Hall.) *Prudent, Vivian, Green*.

**810† Research Methods in Nutrition G 3**

(705) A. 3 cl.

Prereq.: 610, Biochem. 511 and Physiol. 312 or equiv.

Organization, methods, analysis of data and reporting projects in nutrition research. *Prudent*.

**813† Introductory Food Research G 3**

(715) Sp. 1 cl., 2 3-hr. lab.

Prereq.: 615 and Biochem. 511 or equiv.

Individual investigations in food preparation, processing in the home and food storage carried out in laboratory, analyzed and reported. *Prudent*.

**816 Recent Developments in Food and Nutrition Research G 3**

(735) Su. 3 cl.

Prereq.: Biochem. 511 or 531. or equiv. or permission of instructor.

Brief survey of recent research. *Prudent*.

**822 Seminar in Management, Housing and Equipment G 3 or 5**

(820) Sp. 3 cl.

(821) Prereq.: 30 cr. hrs. in Home Ec., including 622 or 623 or 825 or 826 depending on emphasis of topic, and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

**825 Home Management: Activity Analysis G 3**

(720) W. 2 cl.

Prereq.: Grad. standing in Home Ec., 10 cr. hrs. in home management or household equipment, and permission of instructor.

Advanced study in application of work principles to design of appliances, work space areas, and methods of work in the home. *Maloch*.

**826 Family Economic Resources and Functions G 3**

(721) Sp. 3 cl.

Prereq.: Econ. 655 or equiv. and permission of instructor.

Principles, major problems and trends in the economics of the family. *Newark, Deacon*.

**827† Home Management: Development and Theory G 3**

(719) A. 3 cl.

Prereq.: 327 or permission of instructor.

Historical development and present trends in home management with emphasis on theory and practices. *Newark, Deacon, Maloch*.



**830† Trends in Food Service Management G 3 or 5***W. 3 cl.**Prereq.: 20 cr. hrs. in Quantity Food Production, Organization and Management, experience in Food Service Management or Administrative Dietetics.*

Interpretation of principles and current research in relation to management of food service organizations at the policy-making level. *Harger.*

**832 Seminar in Institution Management G 3 or 5***(831) Su. 1-2 cl.**Prereq.: Grad. standing in Home Ec. and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

(Topics listed in 262B Campbell Hall.)

**840 Research Methods in Home Economics G 3***(750) A. 3 cl.**Prereq.: Master's degree students in Home Ec.*

Nature of research in various areas of the field; criteria for setting up a research problem; techniques for collecting and analyzing data.

**841 Home Economics in American Education G 3***(740) A. 3 cl.**Prereq.: 441 or equiv. and permission of instructor.*

An overview of home economics at the elementary, secondary, higher education and adult levels; general trends in enrollment, curriculum and guidance, supervision, administration and research.

**842 Home Economics in Higher Education G 3***(840) W. 3 cl.**Prereq.: 841 or equiv.*

Present status and function of home economics at the college level; problems in curriculum development; criteria for effective teaching, guidance, and testing procedures.

**843 Seminar in Home Economics Education G 3 or 5***(841) W. 1-2 cl.**Prereq.: Grad. standing in Home Ec. and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

(Topics listed in 347B Campbell Hall.)

**844 Evaluation in Home Economics G 5***(742) Sp. 3 cl.**Prereq.: 841.*

Procedure for appraising student progress in the attainment of objectives; construction of evaluation instruments, analysis, and interpretation of data from evaluation programs.

**845 Supervision of Home Economics Teaching G 3***(702) Sp. 3 cl.**Prereq.: 846 or permission of instructor.*

For experienced teachers of home economics who are interested in supervising student teachers or in working with home economics teachers in service.

**846 The Teaching of Home Economics G 3***(741) Sp. 3 cl.**Prereq.: 841 or equiv. and permission of instructor.*

Home economics in integrated, core, experimental and other special types of programs.

**860 The Family: The Early Years G 3***(761) Sp. 2 1½-hr. cl.**Prereq.: Psychol. 661, Soc. 463 or equiv. and graduate standing or permission of instructor.*

Relationships and adjustments in family living with emphasis on the early and expanding stages of the family life cycle.

**861 The Family: Middle and Later Years G 3***A. 3 cl.**Prereq.: 860.*

The interrelationship and adjustment of families with emphasis on the middle and later years of the life cycle.

**862 Seminar in Family and Child Development G 3 or 5***(861) W. 1-3 cl.**Prereq.: Grad. standing in Home Ec. and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

(Topics listed in 347B Campbell Hall.)

**870 Clothing: Fashion G 5***(670) W. 3 cl. plus independent study.**Prereq.: 672 and 25 cr. hrs. in courses in Soc., Psychol., Econ. or Bus. Org.*

Fashion as a social and economic force—its influence on production, distribution, and consumption of textiles and clothing.

**871† Textiles: Chemical Analysis G 5***(771) W. 1 cl., 2 4-hr. lab.**Prereq.: 571, 893.03, and Chem. 242, 243.*

Application of chemical techniques to the quantitative and qualitative analysis of textile materials, including analysis of fiber content, and non-fibrous materials. *Lapitsky.*

**872 Seminar in Textiles and Clothing G 3 or 5***(801) A, Sp. 2-3 cl.**Prereq.: 672 and 870 or 671, or 842 and Ed. 845, depending on emphasis of topic and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

(Topics listed in 235A Campbell Hall.) *Gilmore, Lapitsky.*

**893 Individual Studies G 2, 3 or 5***(701) A, W, Sp. 1 conf. or more.**Prereq.: Permission of instructor.*

Problems in various phases of home economics chosen for individual study.

- .01 Food
- .02 Nutrition and Dietetics
- .03 Textiles
- .04 Clothing
- .05 Home Furnishing
- .06 Household Equipment
- .07 Home Management
- .08 Institution Management, Equipment, and Food Buying
- .09 Teaching Home Ec.
- .10 Family and Child Development

- 898 Interdepartmental Seminar in Nutrition and Food Technology G 1  
Sp.

(See under Interdepartmental Seminars.)

- 899 Interdepartmental Seminar G 1-5  
A, W, Sp.

(See under Interdepartmental Seminars.)

- 999 Research in Home Economics G Arr.  
(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Horticulture

Office: Department of Horticulture and Forestry, 118 Horticulture and Forestry Building, 1827 Neil Avenue. PROFESSORS †HOWLETT (Chairman), †ALBAN, BEATTIE, †BROWN, †CHADWICK, COWEN, †DONOHO, †GOULD, †HARTMAN, †HILL, †KIPLINGER, LAURIE (Emeritus), and †REISCH; ASSOCIATE PROFESSORS †CAHOON, †CLEMENTS, †GEISMAN, †KRETCHMAN, and TOUSE; ASSISTANT PROFESSOR †GALLANDER.

- 111 Introduction to Landscape Horticulture U 3

(408) A. 2 cl., 1-hr. lab.

Value of landscape horticulture to the individual and community including culture, identification, and use of plants in planting design and interior decoration. *Reisch.*

### Plant Science in Agriculture

(See Agron. 200)

(Offered in cooperation with the Departments of Hort. and Forest. and Agron.)

- 203 Horticultural Morphology U 5  
(403) A, Sp. 5 cl.

A study of horticultural plant materials emphasizing the interpretation of gross plant structures and their development in relation to cultural practices and the environment. *Hartman.*

- 241 Food Preservation U 3  
(423) Sp. 3 cl.

Introduction to the food processing industry; principles involved in the modern methods of assembling, processing, and distribution of food. *Gould.*

- 415 Plant Propagation U 5  
(440) Sp. 4 cl., 1 2-hr. lab.

Prereq.: 203, 431 and 432, Bot. 101 or permission of instructor.

Study of the principles and commercial practices involved in the sexual and asexual propagation of horticultural plants; facilities, equipment, and pathogen-free stock are considered.

- 422 Greenhouse Environmental Control U 5  
(542) A. 4 cl., 1 3-hr. lab.

Prereq.: 415, and Bot. 101.

Principles and practices of greenhouse and growth chamber operation including construction, heating, cooling, light, photoperiodism, temperature, humidity, ventilation, moisture, soils, nutrition, and pests. *Kiplinger.*

- 431 Landscape Horticulture I—Herbaceous Plants U 5

(544) Sp. 3 cl., 2 2-hr. lab.

Prereq.: 203 and Bot. 101.

The identification, culture and landscape use of bulbs, annuals, herbaceous perennials, and garden roses; identification of lawn grasses and turf management are also covered.

- 432 Landscape Horticulture II—Woody Deciduous Plants U 5

(550) A. 3 cl., 2 2-hr. lab.

Prereq.: 203 and Bot. 101 or permission of instructor.

A detailed study of deciduous trees, shrubs and vines, their identification, growth habits, culture, adaptation to environmental conditions, uses, combinations, and management in landscape plantings. *Chadwick, Reisch.*

- 433 Landscape Horticulture III—Woody Evergreen Plants U 5

(551) W. 3 cl., 2 2-hr. labs.

Prereq.: 203 and Bot. 101.

Detailed study of narrow and broadleaf evergreens, their identification, growth habits, culture, uses, and management in landscape plantings; winter characteristics of deciduous plants reviewed. *Reisch.*

- 434 Landscape Horticulture IV—Woody Plants U 5

(552) Sp. 3 cl., 2 2-hr. labs.

Prereq.: 432 and 433.

Woody plant use for specific landscape function and unusual environment situations; aesthetic features of plants are studied in detail with emphasis on selected major genera. *Reisch.*

- 441 Processing of Fruit and Vegetable Products U 5

(524) W. 3 cl., 2 2-hr. labs.

Prereq.: Chem. 102 or 122.

Fundamentals essential to commercial processing and utilization of fruits, vegetables, and related food products. *Gould.*

- 442 Quality Attributes of Fruits, Vegetables, and Related Foods U 5

Sp. 3 cl., 2 2-hr. labs.

Prereq.: Chem. 102 or 122.

Identifying, evaluating and controlling quality attributes of fresh and processed fruits, vegetables, and related products as to consumer acceptance, nutrition, and use. *Gould.*

- 450 Principles of Vegetable Crop Production U 5

(522) W. 4 cl., 2-hr. lab.

Prereq.: 203.



The production and utilization of vegetable crops, including potatoes, with emphasis on environmental factors which influence growing and handling of these crops. *Alban*.

**461 Principles of Tree Fruit Production U 5**

(503) A. 4 cl., 2-hr. lab.

Prereq.: 203 or equiv.

A study of the fundamental principles of pome and stone fruit production with emphasis on recognition and solution of problems according to modern scientific concepts. *Hartman*.

**462 Principles of Small Fruit Production U 5**

(504) W. 4 cl., 2-hr. lab.

Prereq.: 203.

A study of small fruit production with emphasis on the recent biological advances from which this technology has evolved. *Hill*.

**489 Horticultural Industries Experience U 2**

(570) A, W, Sp.

Prereq.: Major standing in Hort.

Repeatable to a maximum of 4 cr. hrs.

Required for two qtrs. for students majoring in Land. Hort. under Agr. Ind. degree program.

Ten weeks of planned and supervised practical experience in an approved horticultural enterprise, including completion of a special problem with a written report.

**593 Individual Studies U 2, 3 or 5**

(701) A, W, Sp.

Prereq.: Senior standing in Hort.

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related crops.

**599 Honors Course in Horticulture U 2, 3 or 5**

(701) A, W, Sp.

Prereq.: Honors Program.

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related products.

**601 Horticultural Plant Breeding U G 3**

W. 2 cl., 1 2-hr. lab.

Prereq.: 422, or 450 or 461, Biol. 102.

Plant breeding methods and genetic principles applied to horticultural plant improvement, including fundamentals of seed production, variety evaluation, certification, and maintenance. *W. N. Brown*.

**609 The Post-Harvest Physiology of Horticultural Crops U G 5**

A. 3 lec., 2-hr. lab., 1-hr. assigned reading.

Prereq.: 422 or 450, 461, 462 and Bot. 431, or permission of instructor.

The basic principles of post-harvest physiology, handling, and storage of fruits, vegetables, ornamentals, and flowers are stressed along with operational techniques of modern storages. *Kretchman*.

**610 Weed Control in Horticultural Crops U G 3**

Sp. 3 cl.

Prereq.: 15 cr. hr. Hort. and 10 cr. hrs. Bot.

A study of environmental, and cultural factors which influence weed development in horticultural crops and a review of the principles of chemical and mechanical weed control. *Alban*.

**611 Tropical and Subtropical Fruit and Vegetable Production U G 5**

A. 4 cl., 2-hr. lab.

Prereq.: Senior or graduate standing, plus minimum of 20 cr. hrs. Biol. Sc. and Agron. 510.

A study of important tropical and subtropical fruits and vegetables, with emphasis on latest technological advances to achieve optimum quantitative and qualitative yields.

**622 Commercial Floriculture I— Potted Plants U G 5**

(643) W. 4 cl., 1 3-hr. lab.

Prereq.: 422 and Bot. 430 and 431 or concur.

Physiological principles and environmental factors in production of azaleas, begonias, bulbs, chrysanthemums, cyclamen, geraniums, hydrangeas, poinsettias, roses, saintpaulias, and other potted flowering and foliage plants. *Kiplinger*.

**623 Commercial Floriculture II— Cut Flowers U G 5**

(645) Sp. 4 cl., 1 3-hr. lab.

Prereq.: 422 and Bot. 430 and 431 or concur.

Physiological principles and environmental factors in production of asters, carnations, chrysanthemums, orchids, roses, snapdragons and other cut flower crops; production costs of crops are analyzed. *Kiplinger*.

**624 Commercial Floriculture III— Design and Marketing U G 5**

(651) Sp. 3 cl., 2 2-hr. labs.

Prereq.: 422 and Econ. 201.

Fundamentals of commercial floral design; flower shop management; principles and practices in handling, packaging, and selling florists' crops and supplies through wholesale and retail outlets. *Kiplinger, Reich*.

**641 Unit Operations in Processing Fruits, Vegetables and Related Foods I U G 5**

(631) Su. 3 cl., 2 3-hr. labs.

Prereq.: 441.

Unit processes of handling, grading, cleaning, sorting, peeling, pumping, change in form, and filling as related to commercial processing of fruits, vegetables, and related products. *Gould*.

**642 Unit Operations in Processing Fruits, Vegetables, and Related Foods II U G 5**

(624) A. 3 cl., 2 2-hr. labs.

Prereq.: 441.

Unit processes of extracting, filtering, and emulsifying, carbonating, gassing, enrobing, compounding, forming, and fortifying as related to food manufacture. *Geisman*.

**650 Greenhouse Vegetable Crops U G 5**

(526) A. 3 cl., 4 hrs. lab.

Prereq.: 422 and Bot. 430.

A study of the origin and development of the vegetable forcing industry and present-day cultural practices with reference to the more important greenhouse vegetable crops. *Alban*.

- 652 Advanced Vegetable Crops** U G 5  
(622) Sp. 4 cl., 1 2-hr. lab.  
Prereq.: 450.

The culture of the principal vegetable crops, including history, plant characteristics, physiology, propagation, climatic and edaphic adaptations, and specialized production technology. *W. N. Brown.*

- 690 Colloquia** U G 2  
A, W, Sp.  
Prereq.: Senior standing.

Topic to be announced.

- 694 Special Group Studies** U G 2, 3 or 5  
A, W, Sp.  
Prereq.: Senior or graduate standing.

Special group studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology.

- 699 Junior Seminar** U G 2  
A, W, Sp.

Review and interpretation of research literature.

- 731 Arboriculture** U G 5  
(683) A. 4 cl., 1 3-hr. lab.  
Prereq.: 432 and Bot. 431.

Environmental factors affecting plant growth and the planting, fertilization, pruning, cabling, and pest control practices in commercial arboriculture, city forestry, park, and industrial grounds maintenance. *Chadwick.*

- 732 Advanced Plant Propagation** U G 5  
(713) W. 4 cl., 1 2-hr. lab.  
Prereq.: 415, 422 and 432, and Bot. 430 and 431 or concur.

A study of the basic anatomical and physiological factors involved in the propagation of horticultural plants. *Chadwick.*

- 733 Analysis and Organization of the Nursery Industry** U G 5  
(650) Sp. 4 cl., 3-hr. lab.  
Prereq.: 432, 433 and 732; Bot. 430; Agron. 240.

Detailed consideration of factors involved in site selection and operation of commercial nurseries and garden centers; production and marketing of ornamental plants and related products. *Chadwick.*

- 741 Food Regulations and Product Examination** U G 5  
(629) W. 3 cl., 2 2-hr. labs.  
Prereq.: 241 and 442.

Food laws, regulations, grade standards, and the technical control of processed foods; interpretation of laboratory analysis for control of product quality. *Gould.*

- 794 Special Group Studies in the Processing of Fruits, Vegetables, Related Food Products** U G 2  
(710) Prereq.: 641, 642 and 741.

Repeatable by undergraduates to a maximum of 8 cr. hrs.

- Plant Sanitation and Waste Disposal. *Su. Gould.*
- Processing Methodology. *A. Gould.*
- Packaging Materials and Methodology. *W. Geisman.*
- Color Evaluation and Advanced Quality Control. *Sp. Gould.*

- 801 Advanced Studies in Horticultural Science** G 2 or 3  
(810) A, W, Sp.

Prereq.: Permission of instructor.

- Morphological and anatomical studies of flowering and fruiting. *Sp. Hartman.*
- Morphological and anatomical studies of vegetative plant parts as influenced by environment. *W. Hartman.*
- Post-harvest physiology of horticultural crops and plants. *A. Kretchman.*
- Advanced vegetable physiology. *A. Alban.*
- Advanced horticultural crop breeding. *W. Brown.*
- Fruit and vegetable processing and specialty products. *A. Gould.*
- Quality control in fruit and vegetable processing. *Sp. Gould.*
- Physiological studies in floriculture crops. *A. Kiplinger.*
- Microclimates in landscape plantings. *Sp. Reich.*

- 804 Seminar** G 2  
A, W.

- 805†\* Seminar in the Historical Literature and Current Developments of Horticulture** G 4  
(705) A.

Prereq.: 461 or 652 or 622 or 731.

History and literature of horticulture from the 8th Century B.C. to the present; developments during the 20th Century emphasized; current trends appraised. *Howlett.*

- 811 Advanced Plant Nutrition I—Macro-nutrients** G 5  
A. 3 cl., 4 lab. hrs.  
Prereq.: Bot. 431 or equiv.

Effect of major nutrient elements exclusive of calcium upon development of horticultural plants; physiology and biochemical changes occurring within plants and diagnosing deficiencies and excesses. *Howlett.*

- 812 Advanced Plant Nutrition II—Micro-nutrients** G 5  
(712) W. 2 cl., 2 2-hr. labs., assigned reading 1 hr.  
Prereq.: Bot. 431 or equiv.

Effects of deficiencies and excesses of calcium and micro-nutrients upon growth and development of horticultural plants including techniques of detecting and correcting such conditions. *Hill.*

- 893 Individual Studies** G 2, 3 or 5  
(701) A, W, Sp.

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related food products.

- 897 Interdepartmental Seminar in Natural Resources** G 1  
A, W, Sp.  
(See under Interdepartmental Seminars.)

- 898 Interdepartmental Seminar in Nutrition and Food Technology** G 1  
Sp.  
(See under Interdepartmental Seminars.)

- 999 Research Thesis or Dissertation** G 1-15  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.



## Industrial Engineering

Office: 125 Industrial Engineering Building, 190 West 19th Avenue.

PROFESSORS †BAKER (Chairman), †BISHOP, CARSON, EDMONDSON (Emeritus), LEHOCZKY (Emeritus), †MOORE, †MORRIS, †PEPPER, and †ROCKWELL; ASSOCIATE PROFESSOR †MILLER; ASSISTANT PROFESSORS †BROWN, FRANCIS, †GIFFIN, HOOVER, †KIBBEY, and OVERBY; and INSTRUCTORS.

### 201 Foundry Practice\* U 3

(404) A, Sp. 2 cl., 4 lab. hrs.

Prereq.: Educ. 2nd yr. standing or permission of chairman.

Not open to students in the College of Engineering. Safety glasses must be worn in laboratory.

Laboratory practice in bench, floor and machine molding, casting of grey iron and non-ferrous alloys with emphasis on non-ferrous technology.

### 202 Machine Shop Practice\* U 5

(420) A, Sp. 10 cl. and lab. hrs.

Prereq.: Eng. Dr. 100 or equiv. Educ. 2nd yr. standing or permission of chairman.

Not open to students in the College of Engineering. Safety glasses must be worn in laboratory.

Laboratory practice on basic machine tools. Course objective is to develop skills and knowledge that are essential for the Industrial Arts teacher at the secondary level.

### 401 Manufacturing Processes\* U 4

(519) A, W, Sp. 2 cl., 6 lab. hrs.

Prereq.: Engr. 3rd yr. standing or permission of chairman. Safety glasses must be worn in the laboratory.

Fundamentals and interrelationships of the principal manufacturing processes. Laboratory work in the areas of foundry, machine tools, heat treating and welding.

### 402 Machine Tool Applications\* U 5

(521) W, Sp. 3 cl., 4 lab. hrs.

Prereq.: 401 or permission of chairman. Safety glasses must be worn in laboratory.

Industrial Engineering aspects of machine tool usage. Emphasis upon process choice and economic factors.

### 403 The Principles of Engineering Management U 5

(602) A, Sp. 5 cl.

Prereq.: 3rd yr. standing and permission of instructor.

A consideration from an engineering standpoint of the fundamentals of engineering management.

### 431 Manufacturing Equipment and Methods U 3

(614) A. 2 cl., 2 1-hr. lab.

Not open to students in the College of Engineering.

A survey including lectures, laboratory demonstrations and field trips, to acquaint the student with industrial production methods and equipment.

\*Courses Indust. E. 201, 202, 401, 402, and Weld. E. 240 require the use of safety glasses; however, each student needs only one pair for all courses. In the event that the student must have prescription lenses, he shall obtain his safety glasses during the quarter preceding their first use. This may be done through the Optometry Clinic, Optometry Building, or through any registered optometrist.

### 501 Methods Analysis and Time Study U 5

(663) A, W. 3 cl., 4 lab. hrs.

Prereq.: 403 and Math. 426.

Principles, applications, and purposes of methods analysis, work measurement, process and operation analysis.

### 502 Work Measurement and Standards U 5

(664) A, Sp. 3 cl., 4 lab. hrs.

Prereq.: 501.

Principles, applications, and purposes of work measurement and standards. Characteristics and limitations of techniques are discussed in detail, including link analysis and ratio delay.

### 503 Safety Engineering U 3

(771) A, W. 3 cl.

Prereq.: 401 and 6 additional cr. hrs. in other laboratory courses including mechanical equipment.

The nature, cause, and costs of industrial accidents and occupational diseases. Methods of accident prevention, physical, supervisory, and educational. Ohio laws, regulations, and aids.

### 504 Engineering Economy U G 3

(761) W, Sp. 3 cl.

Prereq.: 212 and Math. 426.

Not open for graduate credit to majors in Indust. E.

Economic analysis of engineering projects and methods of operation. Introduction to the analysis of engineering decisions. Morris.

### 505 Production Engineering U G 5

(709) W, Sp. 3 cl., 6 lab. hrs.

Prereq.: 402, 501.

Not open for graduate credit for majors.

Fundamentals of production tooling and correlating with design and specifications of the product. Kibbey.

### 506 Design of Production Systems U 5

(708) A, Sp. 3 cl., 4 lab. hrs.

Prereq.: 501, concur. 502.

Integration of the methods and analytical techniques of industrial engineering into the design of a complete production system.

### 531 Tool Engineering U 3

(667) A. 2 cl., 4 lab. hrs.

Prereq.: 401.

The design of tools, jigs, and fixtures. The basic elements of fixture design, such as form, locating points, clamping devices, and the use of standardized parts.

### 532 Motion and Time Study U 3

(633) A, W, Sp. 2 cl., 1 2-hr. lab.

Prereq.: Bus. Org. 500, 630, and Econ. 442.

Not open to students in the College of Engineering.

The objectives, scope, and techniques of time study and methods analysis are considered from the standpoint of the factory and office supervisor.

### 533 Time and Motion Study U G 3

(714) Sp.

Prereq.: 3rd yr. standing.

Not open to majors in Indust. E.

Not open to students with credit for 501, 502.

\*See footnote concluding second column, preceding page.

Principles, aims, methods, and applications of time and motion study including job analysis, job standardization, formula construction, job evaluation and wage evaluation. *Baker.*

### 534 Principles of Industrial Engineering U G 4

(715) A, W. 4 cl.

Prereq.: Prof. Div. 3rd yr. standing, Math. 421.

Not open to majors in Indust. E.

A survey of the industrial engineering phase of manufacturing with emphasis on principles and problem solving methods.

### 589 Junior Inspection Trip U 2

(630) Sp. One week at end of W. Qtr.

Prereq.: Major standing in Indust. E.

A group visit to various industrial plants. Students must register for the course and pay the laboratory fee at the beginning of the Spring Quarter.

### 601 Industrial Quality Control U G 3

(706) W, Sp. 3 cl.

Prereq.: 403 and Math. 426.

The application of probability theory, statistics, and control theory to problems in product inspection and process control. Economic evaluation of quality control techniques. *Brown.*

### 602 Production Programming U G 3

(764) A, Sp. 3 cl.

Prereq.: 504.

Mathematical formulation and solution of problems of scheduling, inventory control, logistics, etc. The course covers various linear models. *Bishop.*

### 685 Practical Experience in an Industrial Organization U 6

(839) A. Ten weeks during the summer between the 4th and 5th years.

To be obtained in some engineering or industrial organization. The student shall present a satisfactory report upon the work done.

### 693 Special Problems in Industrial Engineering U G 1-6

(799) A, W, Sp.

Prereq.: 5th yr. standing and permission of instructor.

This course is intended to give the advanced student an opportunity to pursue special studies not offered in fixed curricula.

### 750 Advanced Studies in Industrial Engineering U G 3-24

(798) A, W, Sp.

Prereq.: 5th yr. standing and permission of instructor.

Repeatable to a maximum of 24 cr. hrs.

The student must register for specific classes in areas as indicated below, and may register for more than one at a time.

- .01 Job Evaluation
- .02 Organized Labor and Industrial Methodology
- .03 Industrial Applications for Statistics
- .04 Quality Control
- .05 Engineering Economy
- .06 Production Planning and Control
- .07 Contemporary Problems in Plant Layout and Design

- .08 Materials Handling
- .09 Time Standards and Estimates
- .10 Human Factors in System Design
- .11 Organization of Industrial Engineering Functions
- .12 Production Engineering
- .13 Industrial Safety Problems

### 811 Methods Engineering G 3-12

A, W, Sp.

Prereq.: 501 and 502.

Advanced work in one or more special phases of time study, motion study, job evaluation, wage analysis and payment systems, speed and effort rating. The viewpoint of unions and problems arising from labor-management relationships. *Baker.*

### 812 Advanced Systems Design G 3

W.

Prereq.: 750.10.

Advanced work in the analysis and design of man-machine systems. *Giffin.*

### 821 Problems in Production Engineering G 3-12

A, W, Sp.

Prereq.: 505.

Advanced work in one or more phases of Production Engineering involving problems in production design, equipment planning, tool design, quantity and quality control. *Kibbey.*

### 828 Advanced Studies in Plant Design and Materials Handling G 3-12

A, W, Sp.

Prereq.: 506.

Advanced work in one or more special phases of plant design and materials handling. *Miller.*

### 840 Operations Research G 3

A, W, Sp.

Prereq.: 801 and 504, or equiv.

Advanced work on the methodology and techniques of Operations Research.

### 842 Operations Research I G 3

A.

Prereq.: Calculus, probability theory and statistical methods, and permission of instructor.

Introduction to the nature and problems of Operations Research and the study of actual case histories in the field.

### 843 Operations Research II G 3

W.

Prereq.: 842.

The position of the model in Operations Research and the study of the important techniques and formal approaches to research problems.

### 844 Operations Research III G 3

Sp.

Prereq.: 843.

Consideration of topics in Operations Research including research methodology in the various sciences, and the conduct of actual Operations Research investigations.



- 851 Personnel Research in Engineering Industries** G 3-12  
A, W, Sp.  
Prereq.: 403, 502.

Advanced work in one of the several phases of personnel management in engineering industries. *Baker.*

- 861 Research in Decision Processes** G 3-12  
A, W, Sp.  
Prereq.: 504 and 602.

Advanced work in decision theory and processes including criterion research, decision making under uncertainty and in conflict situations, and gaming techniques. *Morris.*

- 862 Decision Theory** G 3  
A, Sp.  
Prereq.: 504, 601, and permission of instructor.

Introduction to normative decision models and their applications. *Morris.*

- 863 Control Theory** G 3  
A, W, Sp.  
Prereq.: 601, 602, 750.04.

Advanced work in the theory of control of industrial operations. *Bishop.*

- 866 Programming and Control Research** G 3-12  
A, W, Sp.  
Prereq.: 601, 504, 602.

Advanced work in the several phases of programming and control theory. Consists primarily of application of mathematical methods to the formulation and solution of process programming and control problems. *Bishop.*

- 871 Safety Engineering Research** G 3-12  
A, W, Sp.  
Prereq.: 503.

Advanced work in one or more phases of safety engineering; plant design, equipment design, and other accident prevention programs. *Rockwell.*

- 881 Seminar in Industrial Engineering** G 2  
(801) A, W, Sp.  
(802) Repeatable to a maximum of 6 cr. hrs.  
(803)

- 899 Interdepartmental Seminar** G 1-5  
A, W, Sp.  
(See under Interdepartmental Seminars.)

- 999 Research in Industrial Engineering** G Arr.  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.

## Information Sciences

Office: 422 Caldwell Laboratory, 2024 Neil Avenue.  
PROFESSOR †YOVITS (Chairman).  
For available courses consult the Chairman. (Courses pending at time of publication)

## Interdepartmental Seminars

- 895 Interdepartmental Seminar in Radio Astronomy** G 1-5  
A, W, Sp.

Techniques of Radio-Astronomy. Present state of knowledge of the universe as determined by radio-astronomy. Given cooperatively by the Departments of Astronomy and Electrical Engineering. *Ko, Kraus, Slettebak.*

- 896 Interdepartmental Seminar in Polar and Alpine Studies** G 1-3  
Sp. 1-3 hr. cl.  
Permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.

A seminar on selected topics involving anthropology, biology, climatology, exploration, geology, glaciology, microbiology, and soils. Given cooperatively by the Institute of Polar Studies and the following departments: Agronomy, Anthropology, Botany and Plant Pathology, Civil Engineering, Geography, Microbiology, and Zoology and Entomology.

- 897 Interdepartmental Seminar in Natural Resources** G 1  
A, W, Sp.

A seminar in natural resources conservation. Given cooperatively by the Natural Resources Institute and the following departments: Agronomy, Agricultural Economics and Rural Sociology, Agricultural Engineering, Botany and Plant Pathology, Geography, Horticulture and Forestry, and Zoology and Entomology.

- 898 Interdepartmental Seminar in Nutrition and Food Technology** G 1  
Sp.

A seminar in nutrition and in related fields of food technology. Given cooperatively by the Institute of Nutrition and the following departments: Agricultural Biochemistry, Animal Science, Botany and Plant Pathology, Dairy Science, Dairy Technology, Home Economics, Horticulture and Forestry, Microbiology, Physiological Chemistry, Poultry Science, and Preventive Medicine.

- 899 Interdepartmental Seminars** G 1-5  
Two or more departments may collaborate in presenting seminars on subjects of mutual interest. Topics to be announced.

## International Studies

Office: 100 University Hall, 216 N. Oval Dr.  
ASSOCIATE PROFESSOR †NEMZER (Chairman);  
PROFESSORS †BOURGUIGNON, †JEWETT, †MEIDEN,  
†MORLEY, †RANDALL, and †SMITH; ASSISTANT  
PROFESSOR BURGESS.

- 100 Basic Issues in World Affairs** U 5  
(410) W. 3 cl.

General introduction to contemporary international problems, conducted cooperatively by members of several departments.

- 230 Introduction to the Soviet Union** U 5  
(540) A, W. 5 cl.

A survey of the land, people, history, politics, social institutions, literature and arts of the Soviet Union, conducted by members of several departments. *Nemzer.*

**235 The Oriental World U 5**

(520) Sp. 5 cl.

Interdepartmental survey of contemporary Asian civilization; geographic and racial background, historical and cultural heritage, social organizations, economic and political problems, and international relations.

**501 Selected Problems in International Studies U G 5**

(601) W. 2 cl.

*Prereq.: Pol. Sc. 545 or equiv. Open only to Internat. S. majors or students with equiv. preparation.*

Panel discussions, informal conferences, and a reading and research program arranged to meet the special needs of those enrolled. *Nemzer.*

**783 Honors Course U 3-5**

(705) A, W, Sp.

*Prereq.: Senior standing and 40 cr. hrs. in the social sciences including 15 cr. hrs. in courses acceptable for a major in Internat. S., with a grade of A in at least half of these major courses and an average of B in the remainder. Permission of the instructor and Honors Committee of the College.*

*Repeatable to a maximum of 15 cr. hrs.*

Informal conferences to allow full scope of the initiative of the student. A special topic is assigned to each student. The results are tested by conferences and special reports. *Minimum grade of B required for special honors credit.*

**Italian**

*Office: 116 Derby Hall, 154 North Oval Drive.*

PROFESSORS †BULATKIN (Chairman) and †GRIFFIN;  
ASSISTANT PROFESSORS ANGELO and MANCINI.

**101 Elementary Italian U 5**

(401) A, W, Sp. 5 cl.

*Not open to students who are not eligible to take Engl. 101. May not be taken concur. with French 101-102, Port. 101-102, Spanish 101-102. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.*

Elements of Italian grammar with oral and written exercises. Attention to ear training and oral practice. Elementary reading based on Italian geography, history and customs.

**102 Elementary Italian U 5**

(402) W, Sp. 5 cl.

*Prereq.: 101.*

*May not be taken concur. with French 101-102, Port. 101-102, Span. 101-102.*

The elements of Italian grammar with abundant oral and written exercises. Development of conversational skill. Reading, vocabulary building, attention to Italian idioms. Modern Italian prose.

**103 Intermediate Italian U 5**

A, Sp. 5 cl.

*Prereq.: 102.*

Review of Italian grammar; reading of short stories and plays; increased attention to development of oral and written proficiency.

**104 Intermediate Italian U 5**

A, W. 5 cl.

*Prereq.: 103 or 112.*

Intensive practice in oral and written Italian; reading of Italian plays, short stories, and nonfiction of cultural and historical importance; grammar and idiom review.

**112 Intensive Italian U 5, 10, 15**

*Su. 15 cl. Enrollment limited to 20 students.*

*Prereq.: Permission of Chairman.*

*Full time of student required. Equiv. of 101, 102, and 103.*

*Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.*

Elementary and intermediate Italian. Intensive drill in forms, syntax, vocabulary, and idiom. Reading of short stories and plays in Italian.

**202 Italian Conversation and Composition U 5**

(510) Sp. 5 cl.

*Prereq.: 104 or permission of instructor.*

**421 Modern Italian Drama U 5**

(503) W. 5 cl.

*Prereq.: 104 or permission of instructor.*

Special attention to Goldoni and Pirandello.

**422 Modern Italian Poetry U 5**

(504) Sp. 5 cl.

*Prereq.: 104 or permission of instructor.*

Carducci, Pascoli, D'Annunzio. Mancini.

**423 Contemporary Italian Fiction U 5**

(505) A. 5 cl.

*Prereq.: 104 or permission of instructor.*

Italian Literature since the end of the second World War. Mancini.

**534 Italian Literature of the Renaissance U G 5**

Sp. 5 cl.

Readings in such authors as Leonardo, Castiglione, Machiavelli, Ariosto, Tasso; discussion of their relation to the Renaissance movement; lectures in English; reading in English.

**621†\* Dante U G 3 or 5**

(611) W. 5 cl. in Engl.; 2 additional cl. in Ital. for 5 cr. hrs.

*Prereq.: Permission of instructor.*

Introduction to the reading of the *Divine Comedy*. Analysis of major episodes. Mancini.



- 622\* Petrarch and Boccaccio U G 3 or 5**  
(612) W. 3 cl. in Engl.; 2 additional cl. in Ital. for 5 cr. hrs.

Prereq.: Permission of instructor.

Historical and aesthetic analysis of Petrarch's poetry. Petrarchism as a European phenomenon. Literary background of Boccaccio's prose and verse. Readings from the *Decameron*. Mancini.

- 623\* Modern Italian Literature U G 5**  
(613) A. 5 cl.

Prereq.: Permission of instructor.

Italian literature from 1800 to 1920; Foscolo, Leopardi, Manzoni, Verga, Svevo, Carducci, and Pascoli. Reading in Italian; lectures and discussion in Italian and English. Mancini.

- 693 Individual Studies in Italian U G 1-5**  
(701) A, W, Sp.

Prereq.: Permission of instructor.

Mancini.

- 794 Special Group Studies in Italian U G 1-5**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Investigation of minor problems in the various fields of Italian literature and language.

- 999 Research in Italian Language or Literature G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only. Mancini.

## Japanese

Office: 200E University Hall, 216 North Oval Drive.  
ASSOCIATE PROFESSOR CHING (Chairman); LECTURER KAWAMURA; INSTRUCTORS KAWAI and WRIGHT.

- 101 Elementary Japanese U 5**  
(401) A. 5 cl.

Kawai.

- 102 Elementary Japanese U 5**  
(402) W. 5 cl.

Prereq.: 101.

Kawai.

- 103 Intermediate Japanese U 5**  
(403) Sp. 5 cl.

Prereq.: 102.

Kawai.

- 104 Intermediate Japanese U 5**  
(404) A. 5 cl.

Prereq.: 103.

Kawai.

- 251 Classical Japanese Literature in English Translation U 5**

A. 5 cl.

A lecture and reading course in masterpieces of Japanese literature from the 8th to the 19th century.

- 252 Modern Japanese Literature in English Translation U 5**

W. 5 cl.

Japanese literature from earliest 19th century Western influences to present day; emphasis on the novel from Futabata Shime to Mishima Yukio; modern poetry and drama.

- 405 Japanese Conversation U 3**  
(505) W. 3 cl.

Prereq.: 104 or permission of instructor.

Practice in conversation. Kawai.

- 406 Japanese Composition U 3**  
(506) Sp. 3 cl.

Prereq.: 104 or permission of instructor.

Practice in composition. Review of vocabulary and grammar.

Kawai.

- 417† Study Tour of Japan U 15**  
(517) Su. 15 cl., two weeks at OSU; 8 weeks in Japan.

Prereq.: 25 cr. hrs. of Japan. or permission of instructor.

Advanced work in conversation and reading in order to prepare for the tour. In Japan only Japanese will be spoken. Some formal instruction will be given daily by the tour leaders.

- 609 Advanced Reading, Conversation, and Composition I U G 3**

A. 3 cl.

Prereq.: 405 and 406 or permission of instructor.

Reading of contemporary prose and verse, presentation of oral and written reports, drill in pronunciation, practice in translation and composition. Wright.

- 610 Advanced Reading, Conversation, and Composition II U G 3**

W. 3 cl.

Prereq.: 609 or permission of instructor.

Continuation of 609. Wright.

- 611 Advanced Reading, Conversation, and Composition III U G 3**

Sp. 3 cl.

Prereq.: 610 or permission of instructor.

Continuation of 610. Wright.

- 624 Japanese Phonetics U G 5**  
W. 4 cl.

Prereq.: 101 and Ling. 601 or permission of instructor.

A detailed analysis of the phonetic structure of Standard Colloquial Japanese; comparisons with the other dialects and with English; an examination of competing orthographies.

**626 The Structure of the Japanese Language U G 5***Sp. 4 cl.**Prereq.: 104 and Ling. 601 or permission of instructor.*

Descriptions of grammatical structures of Standard Colloquial Japanese; survey of Japanese grammatical tradition and literature within descriptive linguistics; presentation of syntactic rules within the model of transformational grammar.

**651 Classical Japanese U G 3***Sp. 3 cl.**Prereq.: 611 or permission of instructor.*

A reading of classical literary works such as *Hôjôki*, *Uji Shûi Monogatari*, as well as *yaka* and *haiku* poetry.

**693 Individual Studies in Japanese U 2-5***(695) A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Wright.

**Journalism***Office: 204 Journalism Building, 242 West 18th Avenue.*

PROFESSORS †HALL (*Director*), †BARTON, †MAGUIRE, and POLLARD (*Emeritus*); ASSOCIATE PROFESSORS †GOULD, †NORTON, and †SEIFERT; ASSISTANT PROFESSORS BOSTWICK, DRENTEN, †GAUMER, HUDSON, LAEUFER, †MCGIFFERT, and †TITCHENER.

**101 Introduction to Mass Communication U 3***(401) A, W, Sp. 3 cl.**Prereq.: Engl. 101.*

An introduction to newspapers, magazines, radio, television, public relations and other mass media.

**102 The History of U. S. Journalism U 3***(517) A, W, Sp. 3 cl.**Prereq.: 101.*

Major currents in American journalism from colonial times, with emphasis on the responsibilities of a free press and the relationships between press and government.

**201 News Writing I U 3***(402) A, W, Sp. 1 cl., 2 2-hr. labs.**Prereq.: 102.*

Reporting and writing news stories, feature stories; and other types of news coverage.

**202 News Writing II U 3***A, W, Sp. 1 cl., 2 2-hr. labs.**Prereq.: 201.*

Continuation of 201 with emphasis on more complicated reporting and news writing.

**203 Photojournalism U 3***(510) A, W, Sp. 2 cl., 1 2-hr. lab.**Prereq.: 201.*

Reporting the news with a camera. How to recognize, develop, and create picture stories. Experience in coordinating words and news pictures. Picture editing. Layout.

**204 Editing U 3***(501) A, W, Sp. 2 cl., 2-hr. lab.**Prereq.: 201.*

Editing of copy, headline writing, re-writing, and general copy desk work.

**205 Journalism Laboratory U 2***(509) A, W, Sp. 2 3-hr. labs.**Prereq.: 202 and 204, or permission of instructor.*

Laboratory work on the Ohio State Lantern in one or more of the following: reporting, news writing, feature writing, editing, make-up, and critical writing.

**206 Law of the Press, Radio, and Television U 3***(714) A, W, Sp. 3 cl.**Prereq.: 202 or permission of instructor.*

History, principles, and provisions of the law of libel, slander, copyright and other statutes affecting newspapers, other publications and broadcasting.

**211 Typography and Printing U 3***(519) A, W, Sp. 2 cl., 2-hr. lab.*

Typographic and printing processes and their relation to graphic arts in the mass media.

**401 News in Broadcasting U 3***(605) A, W, Sp. 2 cl., 2-hr. lab.**Prereq.: 204 or permission of instructor.*

Preparation and broadcasting of news. Study of the development of news-type programs in the broadcasting industry, both radio and television.

**555 Factual Writing U G 5***A, W, Sp. 5 cl.**Prereq.: Engl. 103 or equiv.**Not open to students majoring in Jour.*

Gathering and writing factual material. Research interviewing, critical analysis, and rewriting are stressed.

- .01 Agriculture
- .02 Home Economics
- .03 Nursing
- .04 Dental-Medical
- .05 General

**601 Magazine Writing I U G 3***(602) A, W, Sp. 3 cl.**Prereq.: 205 or permission of instructor.*

Non-fiction writing for publication in general, professional, trade or Sunday magazines.

**602 Magazine Writing II U G 3***(612) A, W, Sp. 3 cl.**Prereq.: 601.*

Continuation of 601 with emphasis on the full-length magazine article.



**611 Reporting for Radio and Television U G 3**

(606) A, W, Sp. 2 cl., 2-hr. lab.

Prereq.: 401 or equiv.

A study of ethical, aesthetic and technical problems in broadcast news reporting; use of audio-visual materials, instruments and techniques.

**612 Special Radio and Television News Programs U G 3**

(607) A, W, Sp. 2 2-hr. lec. labs.

Prereq.: 401 or permission of instructor.

Planning and production of special news programs: such as the sportscast, the interview, special events, and documentaries.

**The Supervision of Journalism in Secondary Schools**

(See Ed. 614.)

**621 Journalism Laboratory U G 2**

(613) A, W, Sp. 2 3-hr. labs.

Prereq.: 205 or permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

Laboratory work at the School of Journalism or with a professional organization in reporting, feature writing, editing, photojournalism, or broadcasting.

.01 News-Editorial

.02 Radio and Television

.03 Photojournalism

**622 Journalism Laboratory U G 2-4**

(615) A, W, Sp.

Prereq.: Permission of Director of the School of Journalism.

Repeatable to a maximum of 8 cr. hrs.

Students hold responsible positions on the Ohio State Lantern or work with newspapers, broadcasting stations and other mass media.

.01 News-Editorial

.02 Radio and Television

.03 Photojournalism

**623 The Writing of Reviews and Criticisms U G 3**

(603) A, W, Sp.

Prereq.: 205 or permission of instructor.

Study of the work of the dramatic and literary critic, especially on newspapers and magazines. Practice in writing reviews and criticisms.

**624 The Editorial Page U G 3**

(621) A, W, Sp. 1 3-hr. cl., conf. arr.

Prereq.: Jour. 4th yr. standing or permission of instructor.

Study of the purpose, form, style, and spirit of the editorial. Consideration of current events, practice in news interpretation, and other editorial writing.

**625 Investigative Reporting U G 3**

(699) A, W, Sp. 1 3-hr. cl., conf. arr.

Prereq.: Jour. 4th yr. standing or permission of instructor.

Intensive reporting and writing.

**626 Newspaper Management, Circulation, and Advertising U G 5**

A, W, Sp. 4 cl., 3-hr. lab.

Prereq.: Jour. 4th yr. standing or permission of instructor.

Consideration of the tasks and problems of newspaper management with emphasis on circulation policies and methods and those affecting advertising.

**627 Senior Editing U G 3**

A, W, Sp. 1 lec., 2 2-hr. labs.

Prereq.: Jour. 4th yr. standing or permission of instructor.

Advanced theory and practice in editing interpretive articles, columns, editorials, complex news articles, and radio-television documentaries; advanced headline writing.

**631 Public Relations I U G 3**

(617) A, Sp. 3 cl.

Prereq.: 3rd yr. standing.

Survey of public relations—history, social, economics, and political implications; applications in business, industry, government, trade and professional associations and education, labor, social agencies and politics.

**632 Public Relations II U G 3**

(618) W. 3 cl.

Prereq.: 631 or permission of instructor.

Study of research methods in public relations and mass media. Review of contemporary research in public opinion and attitude measurement.

**633 Public Relations III U G 3**

(619) Sp. 3 cl.

Prereq.: 631 or permission of instructor.

Industrial editing. The history, development, and scope of institutional publications; practice in the planning and preparation of these publications.

**634 Public Relations IV U G 3**

(627) A. 1 3-hr. cl.

Prereq.: 631 or permission of instructor.

Public relations methods and techniques; publicity and the mass media; preparation and production of special media.

**641 Reporting Public Affairs U G 5**

(505) A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: Pol. Sci. 205 or equiv. or permission of instructor.

Reporting of court and governmental news; students attend trials, council sessions, visit government agencies as reporters and write news stories.

**642 The Press and Basic Issues of Our Times U G 3**

(608) A, W, Sp. 1 cl., 1 2-hr. seminar.

Prereq.: 641; or senior or graduate standing and permission of instructor.

Distinguished faculty members and nationally known off-campus specialists in economics, history, journalism, law, political science, sociology, the sciences, will analyze issues in the news.

**643 The World Press U G 3-5**

A, W, Sp. 3 cl., conf. arr.

Prereq.: Jour. 4th yr. or graduate standing.

An analysis of newspapers, news agencies, and broadcast news outlets and their roles in the political, economic and cultural development of their nation states.

**651 Mass Media Research** U G 3  
(624) A, W, Sp. 3 cl.

*Prereq.: Jour. 4th yr. or graduate standing.*

Types and methods of qualitative and quantitative research in the news media. Analysis of methods and findings of typical studies.

**693 Individual Studies in Journalism** U G 3-5

(711) A, W, Sp.

*Prereq.: Graduate standing or permission of Director of the School of Jour.*

*Repeatable to a maximum of 15 cr. hrs.*

Students make extensive and significant studies in the field of Journalism.

- .01 News-Editorial
- .02 Radio and Television
- .03 Photojournalism
- .04 Magazines
- .05 Public Relations

**783 Honors Course** U 3-5

(700) A, W, Sp.

*Prereq.: Senior standing, a grade of A in half of the major courses and a B in the remainder; permission of the Director of the School of Jour. and the College Committee on Honors.*

*Repeatable to a maximum of 15 cr. hrs.*

A program for students who are candidates for a degree with distinction in Journalism.

**801† Seminar in Journalism** G 3-5

(802) A, W, Sp.

Integrated reading and research in the fields of Journalism.

**802† Seminar in Journalism** G 3-5

(803) A, W, Sp.

Integrated reading and research in the fields of Journalism.

**803† Seminar in Journalism** G 3-5

(804) A, W, Sp.

Integrated reading and research in the fields of Journalism.

**811 The Foreign Press** G 5

A. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of Director of the School of Journalism and fluency in at least one foreign language spoken in the student's area of specialization.*

A comparative study of news systems in the foreign mass media in major world areas, showing them as products of specific political, economic and social philosophies.

**812 International Communications** G 5

W. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of the Director of the School of Journalism and fluency in at least one foreign language spoken in student's area of specialization.*

Practices of journalism throughout the world and their role in hindering or advancing the international dissemination of news; manipulative communication between nations.

**813 Foreign Correspondence** G 5

Sp. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of the Director of the School of Journalism and fluency in at least one foreign language spoken in student's area of specialization.*

Analysis of international developments as reported in world press media as to their origins, issues and likely evolution.

**899 Interdepartmental Seminar** G 1-5

A, W, Sp.

(See under Interdepartmental Seminars.)

**911 Foreign Internship** G 5

A, W, Sp.

*Prereq.: 811, 812, 813, and permission of the Director of the School of Journalism.*

*Repeatable to a maximum of 30 cr. hrs.*

Students will spend from two to four quarters abroad, associated with newspapers, news agencies, broadcast outlets, news magazines or universities.

**999 Research in Journalism** G Arr.

(950) A, W, Sp.

Research for thesis purposes only.

## Landscape Architecture

School of Architecture

Office: 111 Brown Hall, 190 West 17th Avenue.

ASSOCIATE PROFESSOR TOBEY; INSTRUCTORS; and LECTURERS.

**200 Design of Gardens and Small Properties** U 5

(550) Sp. 2 cl., 9 lab. hrs.

Landscape design for non-professional student emphasizing the design, construction, and planting of residential properties. Tobey.

**201\* History of Landscape Architecture** U 2

(507) A. 3 cl.

A critical and historical analysis of the organization of outdoor space to meet varying needs of man from ancient times to the Renaissance. Tobey.

**202\* History of Landscape Architecture** U 3

(508) W. 3 cl.

A critical and historical analysis of the organization of outdoor space from the Renaissance to the present. Emphasis on the landscape architect's role in public service. Tobey.

**203\* History of Landscape Architecture** U 3

(509) Sp. 3 cl.

The role of the landscape architect in developing the contemporary urban and natural environment. Tobey.



**221†\* Landscape Construction** U 3  
(587) A. 1 cl., 6 lab. hours.  
Prereq.: Land. Arch. 3rd yr. standing.

Interpretation of topography. Problems in the development of ground forms, in road alignment, and construction. Tobey.

**222†\* Landscape Construction** U 3  
(588) W. 1 cl., 6 lab. hrs.  
Prereq.: 221.

Continuation of 221. Tobey.

**232†\* Landscape Construction** U 3  
(589) Sp. 1 cl., 6 lab. hrs.  
Prereq.: 222.

Continuation of 222. Tobey.

**300 Outlines of Landscape Architecture** U 3  
W. 3 cl.  
Prereq.: 4th year standing or permission of instructor.  
Not open to candidates for the Bachelor of Land. Arch. degree.

Principles of site planning; methods of space organization using land forms, structural and plant materials; the relationship of natural and cultural characteristics of the environment. Tobey.

**611 Intermediate Landscape Design** U 6  
(617) A. 1 cl., 15 lab. hrs.  
Prereq.: Land. Arch. 4th yr. standing, Arch. 213.

An intermediate course in design with original problems involving outdoor space such as residential properties, working drawings, specifications and estimates. Thornberry.

**612 Intermediate Landscape Design** U 6  
(618) W. 1 cl., 15 lab. hrs.  
Prereq.: 611.

Continuation of 611. Thornberry.

**613 Intermediate Landscape Design** U 6  
(619) Sp. 1 cl., 15 lab. hrs.  
Prereq.: 612.

Continuation of 612. Thornberry.

**621 Landscape Construction** U 4  
(627) A. 1 cl., 9 lab. hrs.  
Prereq.: 223.

Study of the use of materials in the construction of structural elements in landscape design. Preparation of working drawings, specifications and estimates. Thornberry.

**622 Landscape Construction** U 4  
(628) W. 1 cl., 9 lab. hrs.  
Prereq.: 621.

Continuation of 621. Thornberry.

**623 Landscape Construction** U 4  
(629) Sp. 1 cl., 9 lab. hrs.  
Prereq.: 622.

Continuation of 622. Thornberry.

**661 Planting Design** U 3  
(627) A. 1 cl., 6 lab. hrs.  
Prereq.: Land. Arch. 4th yr. standing, Hort. 433.  
Not open to students with credit for (727).

A study of the use of plant material in landscape design with particular emphasis on composition and ecology. Thornberry.

**662 Planting Design** U 3  
(628) W. 1 cl., 6 lab. hrs.  
Prereq.: 661.

Not open to students with credit for (728).

Continuation of 661. Thornberry.

**663 Planting Design** U 3  
(629) Sp. 1 cl., 6 lab. hrs.  
Prereq.: 662.

Not open to students with credit for (729).

Continuation of 662. Thornberry.

**693 Special Studies in Landscape Architecture** U G 2-10  
A, W, Sp.  
Prereq.: Land. Arch. 4th or 5th yr. standing and permission of the department.  
Repeatable to a maximum of 30 cr. hrs.

For students in the Graduate School and those who wish to pursue special studies in landscape architecture.

**711 Advanced Landscape Design** U 6  
(717) A. 1 cl., 15 lab. hrs.  
Prereq.: Land. Arch. 5th yr. standing 613.

The integration of landscape construction and planting design in the development of problems in advanced landscape design. Individual research and criticism.

**712 Advanced Landscape Design** U 6  
(718) W. 1 cl., 15 lab. hrs.  
Prereq.: 711.

Continuation of 711.

**713 Advanced Landscape Design** U 6  
(719) Sp. 1 cl., 15 lab. hrs.  
Prereq.: 712.

Continuation of 712.

**721 Advanced Landscape Construction** U 4  
(727) A. 1 cl., 9 lab. hrs.  
Prereq.: 623.

Theory and methods, codes and specifications pertaining to advanced landscape construction, and preparation of working drawings. Tobey.

**722 Advanced Landscape Construction** U 4  
(728) W. 1 cl., 9 lab. hrs.  
Prereq.: 721.

Continuation of 721. Tobey.

**723 Advanced Landscape Construction** U 4  
(729) Sp. 1 cl., 9 lab. hrs.  
Prereq.: 722.

Continuation of 722. Tobey.

**750 Professional Practice** U 3  
(759) A. 3 cl.  
Prereq.: Land. Arch. 5th yr. standing, 623.

A study of professional practice including ethics, office organization and the preparation of contracts and specifications. Tobey.

## Latin

Office: 217 Derby Hall, 154 North Oval Drive.

PROFESSORS †HABCOCK (Chairman), †ABBOTT, †FORBES, †W. R. JONES, and †TITCHENER; ASSOCIATE PROFESSORS †LENARDON and MORFORD; ASSISTANT PROFESSORS †BARMANN and HOLSINGER.

See also Classics.

Students with two years of high school Latin should enroll in Latin 103; with three years of high school Latin; including Cicero, in Latin 104; with three years of high school Latin, including Vergil, in 103 or 200. Latin majors should consult the departmental statement in the Catalogue of the College of Arts and Sciences. Placement tests are required for all matriculating (including transfer) students who continue the study of Latin in the University in courses 050, 101, 102, 103, 104, 200, 201, and 202. A Placement Test will be given on the first day of the quarter. For details see the Departmental Secretary in Room 217, Derby Hall.

- 050 Latin Review** U 5  
(412) A. 5 cl.  
Prereq.: Placement test.  
Credit will not be counted toward graduation.

This course is intended for those students whose elementary Latin will begin with a review and continue as a preparation for Latin 103.

- 101 Elementary Latin** U 5  
(401) A. 5 cl.  
Not for students who have studied Latin. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University course in another foreign language.

- 102 Elementary Latin** U 5  
(402) W. 5 cl.  
Prereq.: 101.

- 103 Cicero** U 5  
(404) A, W, Sp. 5 cl.  
Prereq.: 2 yrs. of secondary school Latin, or 102, or 050.

- 104 Vergil** U 5  
(405) A, W, Sp. 5 cl.  
Prereq.: 3 yrs. of secondary school Latin, or 103, or 112.

- 112 Intensive Introduction to Latin** U 5, 10, 15  
(415) Su. 10 cl. and 10 or more hrs. of supervised study.  
Full time of student required. Equiv. of 101, 102 and 103. Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.

- 200 Odes and Epodes of Horace** U 5  
(406) A. 5 cl.  
Prereq.: 104 or equiv. in secondary school Latin.  
Babcock.

- 201 Livy's History of Rome** U 5  
(407) W. 5 cl.  
Prereq.: 104 or equiv. in secondary school Latin.

- 202 Latin Comedy** U 5  
(408) Sp. 5 cl.  
Prereq.: 104 or equiv. in secondary school Latin.  
Selected plays of Plautus and Terence. Abbott.

- 300†\* Roman Historians** U 3  
(501) W. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.  
Selected readings from Sallust and Tacitus.

- 301†\* Lyric, Elegy, Epigram** U 3  
(502) A. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.

- 302†\* Satire** U 3  
Sp. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.  
The development of Roman satire with emphasis on Horace and Juvenal.

- 303 Grammatical Review** U 3  
(505) A. 3 cl.  
Prereq.: 2 courses at 200 level.

- 304 Latin Prose Composition** U 1  
A. 1 cl.  
Prereq.: 2 courses at 200 level.

- 305 Latin Prose Composition** U 1  
W. 1 cl.  
Prereq.: 303 and 2 courses at 200 level.

- 306 Latin Prose Composition** U 1  
Sp. 1 cl.  
Prereq.: 305.

- 312 Intermediate Latin Prose Composition** U 3  
(612) W. 3 cl.  
Prereq.: 4 courses more advanced than 104, one of which must be 303; and at least 2 courses from 304-305-306.  
Schlam.

- 339\* Lucretius' De rerum natura** U 3  
A. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.  
Schlam.

- 340\* Essays of Cicero** U 3  
(540) W. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.  
Abbott.



**344\* Ovid U 3**(544) *Sp. 3 cl.**Prereq.: 2 courses at 200 level, or permission of instructor.**Davis.***603 Advanced Reading U G 3***Su. (1st term). 3 cl.**Prereq.: 4 courses more advanced than 104.***612 Advanced Latin Prose Composition U G 3***Sp.**Prereq.: 312 or equiv.**Morford.***615 Studies in Cicero U G 3***W. 3 cl.**Prereq.: 4 courses more advanced than 104.**Especially recommended for prospective secondary school teachers.**Barmann.***616 Studies in Vergil U G 3***Sp. 3 cl.**Prereq.: 4 courses more advanced than 104.**Especially recommended for prospective secondary school teachers.**Schlam.***617 Studies in Caesar U G 3***A. 3 cl.**Prereq.: 4 courses more advanced than 104.**Especially recommended for prospective secondary school teachers.**Titchener.***625 Introduction to Medieval Latin U G 3***Sp. 3 cl.**Prereq.: For departmental majors, 4 courses more advanced than 104; for others, 2 yrs. of secondary school Latin, or Latin 112, and a reading knowledge of a modern Romance Language or German.**Extensive reading in texts illustrating the history of Latin language and literature from the fourth through the thirteenth century. Forbes.***693 Individual Studies in Latin U G 1-6**(631) *A. W.**Prereq.: 4 courses more advanced than 104.**Repeatable to a maximum of 15 cr. hrs.**Passages for reading and topics for investigation will be selected to meet the needs of individual students. Morford, Davis.***GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND ABOVE***Prerequisites for admission to courses numbered 800 and above are graduate standing and permission of the Chairman.***800 Proseminar G 3***A.**Required of all graduate students.**Students may not receive credit for both Latin 800 and Greek 800.**An introduction to the materials and methods of research; the history of classical scholarship; individual assignments in bibliographical problems. Forbes.***802†\* Plautus and Terence G 4**(702) *A.***803\* Horace G 4**(703) *W.**Titchener.***804†\* Tacitus G 4**(704) *Sp.***805\* Seneca G 4**(705) *Sp.**Abbott.***806†\* Livy G 4**(706) *W.***807†\* Petronius and Apuleius G 4**(707) *Sp.***808†\* Lucretius G 4***A.***809\* Lyric and Elegiac Poetry G 4***A.**Davis.***810†\* Sallust G 4***Sp.***811†\* Juvenal G 4***Sp.***820 Introduction to Historical Latin Grammar G 3**(720) *A.**Abbott.***827 Vulgar Latin G 3**(627) *W.**Prereq.: Graduate standing in Latin, or French 812, or equiv. linguistic basis.**Abbott.***850 History of Roman Literature G 4**(650) *A.**Lectures and assigned reading in literary histories on the development of Roman literature; required and suggested passages for translation in each author studied; weekly reports. Titchener.***851 History of Roman Literature G 4**(651) *W.**Continuation of 850. Abbott.***852 History of Roman Literature G 4**(652) *Sp.**Continuation of 851. Babcock.***855†\* Latin Epigraphy G 3***W.***856\* Topography of Rome G 3***W.**The topography and archaeology of ancient Rome as background to Roman history and literature. Morford.*

- 860 Palaeography** G 3  
A.  
Abbott.
- 861 Textual Criticism I** G 3  
(800) W.  
Prereq.: 860.  
Titchener.
- 862 Textual Criticism II** G 3  
Sp.  
Prereq.: 861.  
Titchener.
- 993 Individual Studies in Latin** G 1-4  
(701) Sp.  
Repeatable to a maximum of 20 cr. hrs.  
Assigned reading and individual research.
- 995 Seminar I** G 5  
W.  
Repeatable to a maximum of 20 cr. hrs.  
Credit in this course will be granted only with the completion of 996.  
The seminar will normally consist of a two-term sequence (A-W or W-Sp); an intensive study of an author or genre, e.g., Horace, Lucan, Cicero or satire. Topic for 1967-68: Lucan. *Morford*.
- 996 Seminar II** G 5  
Sp.  
Prereq.: 995.  
Repeatable to a maximum of 20 cr. hrs.  
Continuation of 995. The seminar will normally consist of a two-term sequence (A-W or W-Sp); an intensive study of an author or genre, e.g., Horace, Lucan, Cicero or satire. Topic for 1967-68: Lucan. *Morford*.
- 999 Research** G Arr.  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.

## Law

Office: 112 Law Building, 1659 North High Street.  
PROFESSORS RUTLEDGE (Dean), BERNSTEIN, BURKE, CALDWELL, CALLAHAN, DAY, HERMAN, LYNN, MILLER, NORDSTROM, POLLACK, RASKIND, SLAGLE, STANGER, WILLS, and PLATT; ASSOCIATE PROFESSORS FINK, KELMAN, MESSERMAN, and SCHWARZ; ASSISTANT PROFESSORS CARPENTER, CLOVIS, ROSENN, and SKLAR; ADJUNCT PROFESSORS CHRISTENSEN, GLANDER, LAWRENCE, and MAYER.

- 500 Introduction to the Study of Law** P 0  
(090) A.  
First-year students in the College of Law meet for the discussion of matters introductory to the study of law. *Rutledge*.
- 501 Freshman Jury Service** P 0  
(091) W.  
First-year law students are required to serve as jurors in the cases tried by seniors in the course in Trial Practice.

- 502 Appellate Practice I** P 0  
(092) W, Sp.  
Procedural and substantive aspects of appellate practice. The student prepares a brief and presents an oral argument on the basis of assigned research materials. See Appellate Practice II and III. *Herman and Moot Court Governing Board*.
- 503 Contracts** P 9  
(500) A. 3 cl., W. 3 cl., Sp. 3 cl. Three-qtr. sequence; credit given only on completion of all 9 cr. hrs.  
Remedies for breach; offer and acceptance; consideration; third party beneficiaries; assignment of rights and delegation of duties; conditions; impossibility and frustration; statute of frauds. *Caldwell, Nordstrom, Stanger*.
- 504 Torts** P 8  
(505) A. 2 cl., W. 3 cl., Sp. 3 cl. Three-qtr. sequence; credit given only on completion of all 8 cr. hrs.  
Trespass to person and property; conversion; privileges; negligence; strict liability; nuisance; owners and occupiers of land; tort and contract; misrepresentation; defamation; right of privacy. *Müller, Carpenter*.
- 505 Property I** P 6  
(510) A. 3 cl., W. 3 cl. Two-qtr. sequence; credit given only on completion of all 6 cr. hrs.  
Incidents of ownership as applied to both real and personal property; possessory interests; concurrent interests; marital interests; future interests; contractual modification of these interests. *Callahan, Lynn*.
- 506 Property II** P 3  
(511) Sp. 3 cl.  
Acquisition and transfer of ownership; adverse possession; conveyances (deeds, mortgages, and leases); intestacy; wills; the recording systems; title registration. *Callahan, Lynn*.
- 507 Civil Procedure** P 9  
(515) A. 3 cl., W. 3 cl., Sp. 3 cl.  
Civil procedure in state and federal courts; development of equity; abolition of common law forms of action; merger of law and equity; jurisdiction; venue.
- 509 Criminal Law** P 4  
(520) A. 4 cl.  
Criminal laws as means of attaining socially desirable ends, stressing criminal behavior and handling of those who engage in that behavior. *Herman, Sklar*.
- 510 Constitutional Law** P 6  
(550) W. 3 cl., Sp. 3 cl. Two-qtr. sequence; credit given only on completion of all 6 cr. hrs.  
Functional study of the major substantive, methodological, and federalistic limitations upon governmental power obtaining under practice of judicial review. *Schwartz, Kelman*.
- 511‡ Legal Research** P 2  
(570)  
Use of law books, both English and American; problems in the use of reports, statutes, selected annotated cases, texts, encyclopedia, digests, dictionaries, periodicals, and citation books.
- 600 Appellate Practice II** P 0  
(093) W, Sp.  
Preparation of a brief and presentation of an oral argument to a panel comprising members of law faculty, bench, and bar. (Appellate Practice II is required of all students not participating on the Law Journal. See Appellate Practice I and III.) *Herman and Moot Governing Board*.



**601 Administrative Practice P 4**

(530) W. 4 cl.

Introduction to administrative process; reconciliation of the primary features of this process, with traditional politico-legal theories of separation of governmental powers. *Rutledge*.

**602 Legal Process P 4**

(545) A. 4 cl.

Comparative evaluation of law-making by private parties, courts, legislatures, and administrative agencies; retroactivity; adherence to precedent; purposes of legislation; statutory interpretation. *Pollack, Kelman*.

**603 Evidence P 6**

(555) W. 3 cl., Sp. 3 cl. Two-qr. sequence; credit given only on completion of all 6 cr. hrs.

Survey of rules of evidence; particularly demonstrative, testimonial, and circumstantial proof; qualification and examination of witnesses; privilege; relevancy; documents; hearsay rule and its exceptions. *Slagle, Messerman*.

**604 Pleading P 3**

(565) A. 3 cl.

Pleading under codes and Federal Rules of Civil Procedure. Requirements of pleadings; variance and amendments; defenses; denials and new matter; counterclaims; reply; demurrer; motions; interrogatories; joinder. *Wills*.

**605 Negotiable Instruments Law P 3**

(575) A. 3 cl.

Types of commercial or negotiable paper; transfer; purchase and payment in due course, discount and security. *Clovie*.

**606 Federal Income Taxation P 4**

(580) A. 4 cl.

Study of the federal income tax; the concept of taxable gross income; deductions; methods for reporting income; capital gains and losses; treatment of corporations and shareholders, partnerships and trusts. *Raskind*.

**607 Business Associations P 8**

(585) A. 3 cl., W. 2 cl., Sp. 3 cl. Three-qr. sequence; credit given only on completion of all 8 cr. hrs.

Forms of business organization; planning corporate and other relationships for commercial and industrial purposes. *Schwarz, Clovis*.

**608 Trusts P 4**

(615) A. 4 cl.

The nature, creation, and elements of trusts; charitable, resulting, and constructive trusts; rights and liabilities of parties. *Lynn*.

**609 Sales P 3**

(630) W. 3 cl.

A study of the Uniform Commercial Code and other statutes bearing on the sale of goods in the American market. *Nordstrom*.

**610 Sales Financing P 3**

Sp. 3 cl.

Prereq.: 609.

With emphasis on the Uniform Commercial Code; financing sale of goods, intangibles, and proceeds; validity of and perfecting security interests; priorities and remedies. *Nordstrom*.

**611 Administration of Criminal Justice P 3**

(650) Sp. 3 cl.

Processes of criminal justice from arrest to parole and probation; impact upon traditional practices and procedures resulting from major decisions of the Supreme Court of the United States. *Herman*.

**612 Admiralty Law P 3**

(652) A. 3 cl.

Admiralty jurisdiction; injuries to seamen and maritime workers; bills of lading; charter parties; salvage; general average; limitation of liability. *Stanger*.

**613 Labor Law P 4**

(610) A. 4 cl.

Collective bargaining processes and duty to bargain; grievance arbitration; legal limitation on economic pressures, including interference with bargaining, strikes, picketing, and boycotts. *Rutledge*.

**614 Comparative Law—Western Europe P 3**

(658A) W. 3 cl., Sp. 3 cl.

Substantive and procedural aspects of foreign legal systems in comparison with American law.

**615 Comparative Law—Latin America P 3**

(658B) W. 3 cl., Sp. 3 cl.

A comparative study of selected aspects of Latin-American and Anglo-American law.

**616 Domestic Relations P 3**

(660) A. 3 cl.

Marriage, annulment, divorce, alimony, custody, intra-family relationships and relations of family members with others; integration data from other disciplines dealing with problems of family. *Messerman, Sklar*.

**617 Estate-Gift Taxation P 3**

(661) Sp. 3 cl.

Federal gift and estate taxation; federal tax practice. Interrelationships of death and gift taxes with federal income taxes. *Glander, Lynn*.

**618 Insurance P 3**

(664) W. 3 cl.

Insurance law and practice with particular reference to fire, life, and automobile insurance; insurable interest; warranties and representations; waiver and estoppel; construction standard policies. *Callahan*.

**619 International Law P 3**

(665) Sp. 3 cl.

Current problems in international law; international agreements; status of states and individuals; recognition; jurisdiction and procedural prerequisites to assertion of international claims. *Stanger, Miller*.

**620 Jurisprudence P 3**

(666) Sp. 3 cl.

Jurisprudential thought as represented by general theories of or about law; assessment of leading juristic doctrines; relationship to social control policy and to legal precepts. *Pollack*.

- 621 Real Property Mortgages** P 3  
(670) W. 3 cl.  
Mortgages and their use as a security device in real property transactions; common mortgage provisions; methods of enforcement of rights; "equitable" mortgages.
- 622 State and Local Taxation** P 3  
(673) W. 3 cl.  
Legal problems arising in property, excise, income, and estate-inheritance taxation; tax administration and procedure. *Glander.*
- 623 Federal Antitrust Law** P 3  
(678) A. 3 cl.  
Prohibition of monopoly and restraint of trade by Sherman and Clayton Antitrust Acts, Federal Trade Commission Act and related statutes. *Day.*
- 624 Taxation of Foreign Income** P 3  
(681) Sp. 3 cl.  
Taxation of individuals and businesses operating in United States and abroad; jurisdiction, income source, foreign tax credit; treaty structure; special statutory entities for foreign trade. *Raskind.*
- 625 Copyright Law** P 3  
(684) A. 3 cl.  
Protection of literary, musical, artistic, and commercial property under common law; the federal copyright statute and related legislation. *Raskind, Day.*
- 626 Law and the United Nations** P 3  
W. 3 cl.  
Establishment of the United Nations, conditions of access, and performance of various functions in the decision process by Security Council, General Assembly and International Court. *Burke.*
- 700 Appellate Practice III** P 0  
(694) A. Sp.  
Evaluation of briefs and oral arguments presented in Appellate Practice I. (Appellate Practice III is required of all third-year students not participating on the Law Journal. See Appellate Practice I and II.) *Herman and Moot Court Governing Board.*
- 701† Advanced Legal Research** P 3  
(653)  
Research techniques providing basic experience in analyzing legal questions, using appropriate publications, and in reaching competent solutions to legal problems.
- 702 Restitution** P 4  
(560) A. 4 cl.  
Restitutionary remedies available for tort, misrepresentation, breach of contract, and for benefits conferred voluntarily, under duress or mistake, or in partial performance of contract. *Nordstrom.*
- 703 Legal Clinic** P 6  
(600) Su. A. W. Sp.  
*Three consecutive qtrs. for regular students Sp, A, W; for students accelerating and graduating in Dec., Sp, Su. A.*  
Practical experience in handling actual cases for legal aid clients in conjunction with Legal Aid Society and under supervision of Director of Legal Clinic. *Messerman, Carpenter, Daehler.*
- 704 Trial Practice** P 3  
(605) A, W.  
*Prereq.: 603, 604.*  
State and federal procedures in civil or criminal causes; individual student practice in the trial to a jury of a civil or criminal case. *Slagle, Sklar.*
- 705 Bankruptcy** P 3  
(655) Sp. 3 cl.  
Methods used for the liquidation of debtors' estates, emphasizing first seven chapters of the Bankruptcy Act. *Caldwell.*
- 706 Conflict of Laws** P 4  
(625) Sp. 4 cl.  
Private law pertaining to jural relations containing one or more foreign elements; jurisdiction; foreign judgments; domicile; choice of law; torts; workmen's compensation acts; contracts; property; family law; decedents' estates. *Miller.*
- 707 Administration of Decedents' Estates** P 3  
(651) W. 3 cl.  
Probate and contests of wills; jurisdiction; effect and necessity of administration; inventory and assets; contracts; sales and investments by personal representatives; claims; accounting and distribution. *Wills.*
- 708 Arbitration Law and Practice** P 3  
(654) W. 3 cl.  
Commercial and labor arbitration under Ohio and federal arbitration statutes; drafting arbitration clauses; conduct of proceedings; arbitrable issues; court enforcement or impeachment of awards.
- 709 Corporate Organization and Finance** P 3  
(659) Sp. 3 cl.  
*Prereq.: 607.*  
Practices used to finance corporations in the process of formation and those used, under varying conditions, after the corporation has had a business experience. *Cloviss.*
- 710 Federal Courts** P 3  
(662) A. 3 cl.  
The Federal judicial system; original jurisdiction; removal jurisdiction; venue; substantive law in federal courts; Federal Rules of Civil Procedure. *Fink.*
- 711 Future Interests** P 3  
(663) W. 3 cl.  
Future interests in real and personal property; their classification, creation, and characteristics; class gifts; powers; rules against perpetuities. *Lynn.*
- 712 Local Government Law** P 3  
(667) W. 3 cl.  
Types and organizations of local government units; intergovernmental relations; "home rule" power of Ohio municipalities; personnel; lawmaking; community planning; taxing and finance; contracts; legal liability. *Fink.*
- 713 Appellate Practice IV** P 2  
(668) A, Sp.  
Procedural and substantive aspects of appellate practice; perfection of appeals, preparation of briefs, and oral argument. *Herman.*



**714 Receivership and Reorganization P 2**(671) *Sp. 2 cl.**Prereq.: 607.*

Equity receivership and corporate reorganization under Chapter X of the Bankruptcy Act; arrangements under Chapter XI of the Act.

**715 Advanced Federal Income Taxation P 3**(674) *W. 3 cl.**Prereq.: 606.*

Advanced study of federal income taxation dealing with corporations and shareholders; partnerships, trusts and decedent's estates; practice and procedure. *Raskind.*

**716 Legal Problems of Foreign Trade P 3 and Investment**(677) *Sp. 3 cl.*

Principal problems confronting Americans engaged in export and import trade and in doing business in Western Europe. *Day.*

**717 Federal Antitrust Law II P 3**(679) *W. 3 cl.**Prereq.: 623.*

Continuation of Federal Antitrust Law; resale price maintenance under state fair trade laws; price and service discrimination under the Robinson-Patman Act.

**718 Unfair Trade Practice P 3**(680) *A. 3 cl.*

Unfair trade practices at common law and statutes, trademarks, trade names, misappropriation of ideas, false advertising, disparagement, resale price maintenance, and price discrimination. *Day.*

**719 Natural Resources P 4**(682) *Sp. 4 cl.*

The nature and incidents of public and private interests in water, minerals, oil and gas; conveyancing of natural resources; and mineral, oil and gas leasing. *Slagle.*

**720 Social Legislation P 3***Sp. 3 cl.*

Characteristics of statutory devices and their utility in effectuating social policy with emphasis upon acts and bills dealing with employment, but including related private plans and nonemployment programs.

**721 Urban Development P 3***Sp. 3 cl.*

The inner city and regional planning through zoning, condemnation, and other legal devices. *Fink.*

**793 Individual Studies P 1-6**

(698)

By special arrangement with the Dean's office, special problems or projects may be taken for credit under the supervision of members of the faculty. The credit granted varies in proportion to the magnitude of the project. In general, assignment of special problems will be limited to instances of exceptional student specialization, scheduling difficulties, and curricular irregularity.

**794 Law Journal P 3***A, W, Sp.*

*Prereq.: Selection for Law Journal by Editors and Faculty. Three cr. hrs. counted toward graduation requirement, but no grade awarded.*

Special studies covering diverse subjects of a legal nature participated in by the group selected for work on the Law Journal. *Carpenter.*

**795 Seminars in Legal Planning P 3**(695) *A, W, Sp. 3 cl.*

Small-group training in the non-litigious functions of the practicing lawyer. Legal planning involves the resolving of fact situations and policy questions of means and ends, together with the effectuation of determinations made in connection therewith. Effectuation of policy decisions often involves the skills of negotiation and draftsmanship, as well as the technique of counseling and litigation. (Training in these latter two techniques is provided by Legal Clinic and Trial Practice, respectively.)

Following is a list from which Seminars in Legal Planning are drawn each year:

**.01 Business Planning**

Planning and drafting in field of business associations; principally concerned with problems in general and limited partnerships, business trusts, and closely held corporations.

**.02 Estate Planning**

Planning an effective and economical gift distribution of property interests; consideration of techniques and restrictions suggested by law of property, wills, future interests, insurance, and taxation.

**.03 Federal Tax Planning***Prereq.: 606.*

Tax problems in business organizations, corporations, partnerships, and individual estates.

**.04 General Legal Planning**

Representative types of personal and business transactions which confront general practitioner, including contracts, partnership agreements, purchase agreements, sales agreements, deeds, wills, and trusts.

**.05 Planning Through Negotiation**

Planning negotiations; weighting legal, economic and social factors and use of techniques for attainment of objectives.

**.06 Legislative Planning**

Role of lawyer in advocating or opposing state and federal legislation; problems selected from past and current proposals before legislature.

**.07 Planning Seminar in Law***Repeatable to a maximum of 6 cr. hrs.*

Topics will change as specially scheduled in any quarter.

**.05 Legal Problems of Foreign Trade and Investment**

Problems encountered by American business enterprises engaged in foreign trade or investment.

**.06 Legal Regulation of Business Practice***Prereq.: 717.*

Regulation of competitive practices through legislative, administrative, and judicial action; equality of opportunity for small business; the Robinson-Patman Act.

**796 Seminars in Legal Research P 3***(696) A, W, Sp. 3 cl.*

Individual training in original research, together with practice in expository legal writing. Subject matters are chosen for their capacity to provide training in the effective integration, with legal factors, of relevant social, economic, and other non-legal materials.

Following is a list from which Seminars in Legal Research are drawn each year:

**.01 Antitrust Law and Economics***Prereq.: 623.*

Evaluation of domestic antitrust law on the basis of current economic theories. (Inter-departmental seminar of the Department of Economics and the College of Law.)

**.02 Antitrust Law and International Cartelization***Prereq.: 623.*

Application of domestic antitrust policy to foreign operations of American corporations.

**.03 Constitutional Problems**

Advanced constitutional questions, involved in evolution of judicial review, intergovernmental relationships, protection of civil liberties, special problems under Ohio Constitution.

**.04 Social Legislation**

Federal wage and hour legislation, including: nature of employment relation; Fair Labor Standards Act; exemptions; compensable time; overtime on fluctuating workweek; child labor.

**.07 Legal Regulation of Devolution of Property**

Socio-legal problems raised by devolution of wealth through such arrangements as public welfare programs, union welfare funds, insurance, foundations, charitable trusts, and pension trusts.

**.08 Problems in the Law of Evidence***Prereq.: 609.*

Advanced evidentiary questions involved in preparation for and trial of cases.

**.09 Problems in Local Government Finance**

Taxing by and financing of local governmental units, including power of and procedure for taxing, expending funds, financing improvements or services.

**.10 Problems in Public Contracts**

Types of government contracts; governmental authority to make contracts; limitations; advertising; bids and awards; formal requisites; standard clauses; contractors' bonds; performance and termination; liabilities.

**.11 The Functional Approach to Law**

Analysis of certain rules and situations to which they relate. Evaluation of rules and of assumptions of cause and effect made as to those rules.

**.12 Legal and Economic Problems in State and Local Taxation***Prereq.: 622.*

State taxation and intergovernmental tax relations in terms of law and fiscal economics. (Offered in cooperation with the Department of Economics.)

**.13 Medical-Legal Problems**

Conflict in concept between disciplines of law and medicine in matters of causation, injury, disability, prognosis, aggravation and re-injury related to their use in proof of such elements in litigation.

**.14 The Individual and His Government**

Governmental powers in democratic and totalitarian countries; relation of power to will of people; justice and fair hearing; personal freedoms surviving legislative and executive encroachments.

**.15 Comparative Labor Law***Prereq.: 613*

Problems in American labor law viewed from the standpoint of both American and foreign law; collective bargaining; the use of economic force; internal and inter-union affairs.

**.16 Right of Privacy**

Individual's interests in freedom from publicity and in physical seclusion; particularly legal response to social and technological changes which threaten these interests.

**.17 Regulated Industries**

Principal regulatory agencies, both federal and state, with respect to licensing, rate-making, mergers, and general supervision of business practices.

**.18 International Law of Sharable and Strategic Resources**

Processes of interaction, claim, and decision with respect to resources largely open to use by all states, including the ocean, "outer" space, air space, international rivers, canals, and polar areas.

**.19 Selected Problems in Criminal Law and Procedure**

Purposes and effects of punishment; wiretapping; Uniform Arrest Act; right to counsel; habeas corpus and other postconviction remedies; treatment of criminal cases by mass communications.

**.20 Research Seminar in Law***Repeatable to a maximum of 6 cr. hrs.*

Topics will change as specially scheduled in any quarter.

**.21 Legal Controls of the Economy**

Study of State and Federal legislation affecting economic activity, including employment acts, antipoverty legislation, tariffs, financing laws, and legal basis of the Federal Reserve System.

**.22 The Legal Implementation of Social Policy**

Interdisciplinary research and field work in institutions protective of children.

**.23 Jurisprudential Approaches to Decision Making**

Considerations of conceptions of the role of law and lawyers in decision processes, with emphasis upon clarification of goal values, drawing on contemporary behavioral and communications sciences, in order to develop problem-solving tools and procedures.



## 24 Syntactic Analysis and Other Tools in Statutory Drafting and Interpretation

A study of the role of the legislature in authoritative law-making with emphasis upon the need for a contextual approach to problems of interpretation, and the consideration of modern syntactic analysis in statutory drafting and interpretation.

## 25 Problems of Administrative Law

601 recommended.

An examination in detail of some of the more troublesome aspects of contemporary executive and administrative operations at federal and state levels.

## 26 Jury Trial

An examination of the role of juries including jury selection, standard instructions, special verdicts, law and fact, myths of jury trial and powers of juries vis-a-vis powers of administrative bodies.

## 27 International Criminal Law

Jurisdiction of tribunals over individuals committing acts considered criminal under international law but not local law; defenses urged; examination of piracy and war crimes.

## Linguistics

Office: 411 University Hall, 216 North Oval Drive.  
PROFESSOR †LEHISTE (Chairman); ASSOCIATE PROFESSOR †FILLMORE; ASSISTANT PROFESSORS †CALLAGHAN, †DRACHMAN, †LANGENDOEN, and †STAMPE.

See also the course listings in English, the foreign languages, Romance Linguistics and Linguistic Studies.

## 201 Introduction to Language U 5

(522) A, W, Sp. 5 cl.

Not open to students with credit for Engl. (522).

A general survey of language and languages, and the ways available to study them, with English as the focal language.

## 202† Writing Systems of the World U 5

(523) A, W, Sp. 5 cl.

Introduction to the nature of selected writing systems, both at the present time and in all periods since the beginning of the use of writing.

## 600 Phonetics U G 3

A. 5 cl.

Prereq.: 601, concur. registration in 601, or an equiv. course in linguistics or phonetics.

Principles of articulatory phonetics; practice in the production, recognition and transcription of sounds occurring in various languages of the world. *Lehiste*.

## 601 Introduction to Linguistics U G 5

A, W. 5 cl.

A broad introduction to the categories and techniques of general linguistics; phonemic, morphemic, and syntactic analysis; applied, historical and comparative linguistics. *Fillmore*.

## 602 Syntactic Structures U G 5

W. 5 cl.

Prereq.: 601.

The grammatical construction of a number of natural languages will be examined. Syntax, morphemics and their relation to linguistic meaning.

## 603 Phonological Structures U G 5

Sp. 5 cl.

Prereq.: 601.

The phonological construction of natural languages will be examined. Phonemic theory and its role in the description of diverse languages.

## 650 Field Methods in Linguistics U G 5

Sp. 4 cl.

Prereq.: 601.

Techniques for describing languages by the use of native informants. *Callaghan*.

## 671 Linguistics and Language Acquisition U G 5

W. 4 cl.

Prereq.: 601.

The contribution of linguistic theory to the study of the acquisition of grammatical, semantic, and phonological skills. *Stampe*.

## 672 Languages of the World U G 3-5

A, W, Sp. 3-5 cl.

Prereq.: 601.

Repeatable.

Under direction of the linguistics staff, informant and laboratory techniques will be employed to teach a selected language not otherwise offered at the University.

## 673 History of Linguistics U G 5

A. 5 cl.

Prereq.: 601.

Ancient, Medieval, Renaissance and Enlightenment views on language; origins of historical and comparative linguistics; development of twentieth-century schools of linguistic theory. *Langendoen*.

## 679 The Classification of Linguistic Structures U G 5

A. 5 cl.

Prereq.: 601.

An examination of the schemes for classifying linguistic structures, phenotypic (typological) and genotypic (genetic or genealogical), and some of the content of each type. *Callaghan*.

## 681 Algebraic Linguistics U G 5

W. 5 cl.

Prereq.: 601 and permission of instructor.

Formal properties of grammar and automata; relations between linear, context-free and context-sensitive grammars and finite, pushdown-storage and linear-bounded automata; properties of transformational grammars. *Langendoen*.

**693 Individual Studies in Linguistics** U G 1-5

(701) A, W, Sp.

**795 Seminar in Linguistics** U G 3-5

(720) A, W, Sp. 3-5 cl.

Prereq.: 602 and 603 or permission of instructor.

Repeatable to a maximum of 20 cr. hrs.

Topics include the history of linguistics, grammatical theory, mathematical models in linguistics, history or structure of individual languages. *Drachman, Stampe.*

**801 Historical Linguistics I** G 5

(761) W. 5 cl.

Prereq.: 601.

An introduction to the methods, conventions, and literature of comparative-historical linguistics with primary attention to the comparisons and reconstructions of phonological systems. *Callaghan.*

**802 Historical Linguistics II** G 5

(762) Sp. 5 cl.

Prereq.: 801.

Advanced work in the comparison and reconstruction of morphological, phonological, and syntactic systems. Detailed examination of some of the results of past and current scholarship. *Callaghan.*

**803 Topics in Indo-European** G 5

A, W, Sp. 5 cl.

Prereq.: 802.

Repeatable to a maximum of 30 cr. hrs.

Study of various Indo-European languages and language families and exploration in depth of specific problems in Indo-European grammar.

**811 Transformational Analysis** G 5

(771) Sp. 5 cl.

Prereq.: 602 and 603 or permission of instructor.

The theory of grammatical transformations: its formal properties, its justifications, its adequacy as a device for explicating grammatical notions in natural languages. *Fillmore.*

**812 Structural Semantics** G 5

A. 5 cl.

Prereq.: 811.

Accounts of semantic judgments in natural languages, especially within the theory of generative grammar; the role of syntax in semantics; and theories of translation. *Fillmore.*

**820 Seminar in Syntax** G 5

Sp.

Prereq.: 795 or permission of instructor.

Repeatable.

Advanced topics in syntactic analysis. *Langendoen.*

**821 Seminar in Phonology** G 5

W.

Prereq.: 795 or permission of instructor.

Repeatable.

Advanced topics in phonological analysis. *Stampe.*

**822 Seminar in Historical Linguistics** G 5

A.

Prereq.: 802 or permission of instructor.

Repeatable.

Advanced topics in methods and principles of diachronic analysis. *Lehiste.*

**999 Research in Linguistics** G Arr.

(950) A, W, Sp.

Research for thesis purposes only.

**Mathematics**

Office: 150 Mathematics Building, 231 West 18th Avenue.

PROFESSORS †ROSS (Chairman), ANDRE (Visiting), †BAJSANSKI, †BAMBAH, †BOJANIC, †DROBOT, †FISHER, †HELSEL, †LEVINE, †MICKLE, †MILLER, MORRIS (Emeritus), †RAY-CHAUDHURI, †REEVES, †REICHELDERFER, ROQUETTE, †RUSTAGI, †SALTZER, †SHAPIRO, †SUCHESTON, †WHITNEY, †WOODS, and †ZASSENHAUS (Research); ADJUNCT PROFESSOR †HOUSE; ASSOCIATE PROFESSORS †ABIAN, BENZ (Visiting), †CARROLL, †COLSON, †CRONHEIM, †DEAN, JONES (Emeritus), †KAPPE, †LEICHT, †MARGARIS, †MEYERS, PETRO (Visiting), †RINER, †SEHGAL, †TULL, WILLKE and †ZILBER; ASSISTANT PROFESSORS ALLAIRE, †BARNES, BEATTY (Emeritus), †BUMCROT, BUONCHRISTIANI (Visiting), CARIS (Emeritus), †DAVIS, DEMANY, †DUDLEY, EUSTICE, †FERRAR, HSIA, KAPPE, †LEE, †J. P. LEITZEL, †J. R. LEITZEL, †MADAN, McWORTER, PEPE, RAU, RICKARD (Emeritus), †RIEDL, †RIZVI, SANTOS (Visiting), J. T. SCHEICK, S. H. SCHEICK (Visiting), SEHGAL, †SRIVASTAVA, †TROY, WALUM, and †YAQUB; INSTRUCTORS ADISON, BROWN, HUFFMAN, and WAITS.

**101 Basic Mathematics** U 5

(412) A, Sp. 5 cl.

Prereq.: Placement on basis of OSU Math. Test.

Programmed instruction used to improve algebraic computation; lectures contain selected advanced topics.

**105 Principles of Mathematics** U 3

(410) W, Sp. 3 cl.

Prereq.: Elem. Educ. standing and Math. 101 or satisfactory score on OSU Math. Test.

The course develops basic ideas on arithmetic, algebra, geometry through the study of the structure of selected mathematical systems.

**108 Introduction to Mathematics I** U 5

A. 5 cl.

Prereq.: Open to freshmen who qualify for Level 1 in English Placement, but who do not qualify for Math. 151 or higher on the basis of the OSU Math. test. Exceptions may be made by special permission of the Department of Mathematics.

This course is designed to provide an introduction to the basic ideas of mathematics from the students in the humanities, life and social sciences.

**109 Introduction to Mathematics II** U 5

(413) W. 5 cl.

Prereq.: 108.



**110 Introduction to Mathematics III U 5**  
 (414) *Sp. 5 cl.*  
*Prereq.: 109.*

**116 First Year College Mathematics I U 5**  
 (416) *A, W, Sp. 5 cl.*  
*Prereq.: 101 or satisfactory score on OSU Math. Test. Not open for credit for students having credit for 121 or 150 or Math. courses having these as prerequisites.*

The sequence 116, 117 is designed as a terminal sequence of courses in Mathematics. 116 treats sets, functions, algebra, graphs, and vector spaces.

**117 First Year College Mathematics II U 5**  
 (417) *A, W, Sp. 5 cl.*  
*Prereq.: 116.*

A continuation of 116. An introduction to analytic geometry, linear programming, trigonometry, matrix algebra, limits.

**121 Mathematics for the Business, Social and Biological Sciences I U 5**  
*A, Sp. 5 cl.*  
*Prereq.: Satisfactory score on OSU Placement Test or at least a C in Math. 101.*  
*Not open for credit for students having credit for 116 or 150 or Math. courses having these as prerequisites.*

The sequence 121, 122, 123 is designed to introduce the student from the Commerce College to calculus and statistics.

**122 Mathematics for the Business, Social and Biological Sciences II U 5**  
*A, W. 5 cl.*  
*Prereq.: 121.*

Continuation of 121.

**123 Mathematics for the Business, Social and Biological Sciences III U 5**  
*W, Sp. 5 cl.*  
*Prereq.: 122.*

Continuation of 122.

**125 Elementary Mathematical Statistics U 5**  
 (435) *Sp. 5 cl.*  
*Prereq.: 116 or 150.*

Elementary principles of probability and introduction to the use of the binominal and normal distributions.

**150 Algebra and Trigonometry U 5**  
 (439) *A, W, Sp. 5 cl.*  
*Prereq.: 101 or satisfactory score on OSU Math. Test. Not open for credit for students having credit for 116 or 121 or Math. courses having these as prerequisites.*

Inequalities, functions, graphs, exponential and logarithmic and trigonometric functions and their graphs, complex numbers, inverse functions.

**151 Calculus and Analytic Geometry U 5**  
 (440) *A, W, Sp. 5 cl.*  
*Prereq.: 150 or Level I Placement on OSU Math. Test.*  
*Not open to students with credit for (418).*

Lines, slopes, derivatives, limits differentiation, rules, mean-value theorem, applications of derivatives to: curve sketching, maxima and minima, linear motion, related rates, approximations, conics.

**152 Calculus and Analytic Geometry U 5**  
 (441) *A, W, Sp. 5 cl.*  
*Prereq.: 151.*  
*Not open to students with credit for (536).*

Continuation of 151. Approximating areas, the integral, integration, formulas, applications of integration, inverse functions, logarithmic and exponential functions, hyperbolic functions, integration techniques.

**153 Calculus and Analytic Geometry U 5**  
 (542) *A, W, Sp. 5 cl.*  
*Prereq.: 152.*

Continuation of 152. Polar coordinates, rotation of axes, vectors, velocity, acceleration, space vectors and three dimensional analytic, geometry, cylindrical and spherical coordinates. Linear systems, matrices, characteristic values.

**190 Elementary Analysis I U 5**  
*A. 5 cl.*  
*Prereq.: Permission of department.*

Special course sequence for superior students. This sequence substitutes for Math. 151, 152, 153, 254.

**191 Elementary Analysis II U 5**  
*W. 5 cl.*  
*Prereq.: Permission of department.*

Continuation of 190.

**192 Elementary Analysis III U 5**  
*Sp. 5 cl.*  
*Prereq.: Permission of department.*

Continuation of 191.

**205 Applications of Mathematics U 5**  
 (545) *A, W. 5 cl.*  
*Prereq.: Educ. standing and 421 or 152.*

Approximately half of the course will be devoted to a study of probability and statistics. Other topics will be chosen to illustrate applications of mathematics.

**241 Introduction to Digital Computer Programming U 5**  
 (590) *A, W, Sp. 3 cl., 2 2-hr. labs.*  
*Prereq.: 116 or 150.*

Introduction to programming language; laboratory experience with computers installed in Computer Center. Scientific, statistical and business applications.

**254 Calculus and Analytic Geometry U 5**  
 (543) *A, W, Sp. 5 cl.*  
*Prereq.: 153.*

Continuation of 153. Partial derivatives, multiple integrals, infinite series.

**255 Differential Equations and Their Applications U 5**  
 (544) *A, W, Sp. 5 cl.*  
*Prereq.: (538) or 254.*  
*Not open to students with credit for (608) or 556.*

Ordinary differential equations with particular emphasis on linear differential equations, systems of differential equations, applications to electrical, mechanical, and chemical systems.

**290 Elementary Analysis IV U 5**

A. 5 cl.

Prereq.: Permission of department.

Continuation of 192.

**291 Elementary Analysis V U 5**

W. 5 cl.

Prereq.: 290 and permission of department.

Continuation of 290.

**292 Elementary Analysis VI U 5**

Sp. 5 cl.

Prereq.: 291 and permission of department.

Continuation of 291.

**294 Special Topics in Mathematics U 2-5**

A, W. Sp.

Prereq.: Permission of Instructor.

Repeatable.

This course is intended to give groups of able students an opportunity to pursue special studies not otherwise offered.

**412 Fourier Series and Boundary Values Problems for Engineers U 3**

(609) A, W. 3 cl.

Prereq.: (608) or 255 or 556.

Not open to students with credit for 557.

Fourier series, applications of Fourier series to the solution of boundary value problems involving partial differential equations, Bessel functions.

**413 Vector Analysis for Engineers U 3**

(622) A, W. 3 cl.

Prereq.: (608) or 255 or 556.

Not open to students with credit for 551.

Vector algebra, vector operators, line integrals, vector integral theorems, curvilinear coordinates; applications.

**414 Complex Variables for Engineers U 3**

(624) W, Sp. 3 cl.

Prereq.: 413 or Elec. E. 510 or Elec. E. 510 concur.

Introduction to complex variables, analytic functions, complex integral theorems, power series, residues, conformal mapping.

**421 Introduction to Statistics U 3**

(546) A, Sp. 2 cl., 1 2-hr. lab.

Prereq.: (538) or 254.

Combinatorial probability, fundamental concepts of probability distributions, sample statistics, estimation and testing hypotheses, roots of statistical theory.

**425 Probability and Statistics I U 5**

A, W. 4 cl., 1 lab.

Prereq.: 254.

Elements of discrete and continuous probability; introduction to estimation and testing of hypotheses.

**426 Probability and Statistics II U 5**

W, Sp. 4 cl., 1 lab.

Prereq.: 425.

Continuation of 425.

**501 Fundamentals of Mathematics I U G 4**

(635) A. 4 cl.

Prereq.: Permission of instructor.

Not open for graduate credit to majors in Math.

This sequence emphasizes the fundamentals of mathematics and is designed for advanced students from areas not requiring intensive mathematical training. Topics include algebra, the number system, induction, theory of equations, progressions, combinations, and permutations, probability, determinants, and matrices, inequalities, analytic geometry, differential and integral calculus.

**502 Fundamentals of Mathematics II U G 4**

(636) W. 4 cl.

Prereq.: 501.

A continuation of 501.

**503 Fundamentals of Mathematics III U G 4**

(637) Sp. 4 cl.

Prereq.: 502.

A continuation of 502.

**504 History of Mathematics U G 5**

(631) W, Sp. 5 cl.

Prereq.: Edu. standing and 152 or permission of instructor.

The development of mathematics from its primitive origins to its present form. Topics include: development of arithmetic, algebra, geometry, trigonometry, and calculus.

**505 Fundamental Ideas in Mathematics I U G 5**

(651) A, W. 5 cl.

Prereq.: Educ. standing and 152 or permission of instructor.

Basic ideas concerning: number systems, sets, fields, axiom systems, finite geometries, projective geometry.

**506 Fundamental Ideas in Mathematics II U G 5**

(652) W, Sp. 5 cl.

Prereq.: 505.

Continuation of 505.

**507 Advanced Geometry I U G 5**

(621) A, W. 5 cl.

Prereq.: (538) or (541) or 152.

Advanced topics from Euclidean Geometry.

**520 Mathematical Statistics I U G 5**

(672) A. 5 cl.

Prereq.: (543) or 254.

Permutations, combinations, probability. Discrete and continuous distributions. Binomial, Poisson, normal chi-square, t, F distributions. Limit theorems of probability.

**521 Mathematical Statistics II U G 5**

(673) W. 5 cl.

Prereq.: 520.

Testing simple hypotheses. Applications of t test, chi-square tests, F tests, nonparametric tests. Confidence intervals.



**522 Discrete Probability U G 3**

(674) *Sp. 3 cl.*  
*Prereq.: 520.*

Discrete probability spaces, random walk, Markov chains, stochastic processes, strong laws of probability.

**528 Statistical Theory in Medical Research I U G 3**

*A. 3 cl.*

*Prereq.: Permission of instructor, special graduate students in medical sciences.*

Fundamental concepts of probability, random variables, statistical inference, regression and correlation analysis. Topics selected from bioassay, life table techniques, computers in medicine.

**529 Statistical Theory in Medical Research II U G 3**

*W. 3 cl.*

*Prereq.: 515.*

Continuation of 515.

**541 Numerical Analysis I U G 5**

(692) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 241 or Engr. Mech. 200, or equiv.; 255 or 556 or equiv.; or permission of instructor.*

Basic techniques of numerical analysis; finite differences, interpolation, solution of equations, integration, difference and differential equations. Laboratory use of computers.

**543 Programming for Digital Computers U G 5**

(695) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 241 or 541 or Engr. Mech. 200 or equiv.*

Expert use of programming language. Design and use of source language subroutines. Input-output facilities. Programming problems whose storage requirements exceed available internal storage.

**545 Mathematical Logic I U G 5**

(685) *W. 5 cl.*

*Prereq.: (537) or 153 or permission of instructor.*

A first course in the study of formal logical systems and their applications to the foundations of mathematics. Topics include: definition of mathematical proof; number theory, set theory, and analysis formalized within the predicate calculus; theorems of Gödel and Church; recursive function theory and idealized digital computers.

**546 Mathematical Logic II U G 5**

(686) *Sp. 5 cl.*

*Prereq.: 545.*

A continuation of 545.

**550 Advanced Calculus I U G 5**

(601) *A, W, Sp. 5 cl.*

*Prereq.: (538) or 254.*

A rigorous presentation of limits, derivatives, mean value theorems, definite integrals, sequences, and series.

**551 Advanced Calculus II U G 5**

(681) *A, W, Sp. 5 cl.*

*Prereq.: 550.*

A continuation of 550 for functions of several variables and vector analysis.

**552 Introduction to the Theory of Functions of a Complex Variable I U G 5**

(607) *W. 5 cl.*

*Prereq.: 550.*

*Not open to students with credit for 414.*

Topics discussed include power series expansions, the formula of Cauchy, residues, conformal mappings, and elementary functions in the complex domain.

**553 Introduction to the Theory of Functions of a Complex Variable II U G 5**

*Sp. 5 cl.*

*Prereq.: 552.*

A continuation of 552.

**556 Differential Equations U G 5**

(611) *A, W. 5 cl.*

*Prereq.: (538) or 254.*

*Not open to students with credit for 255 or (608).*

Equations of first and second orders, linear equations, series solutions, approximate solutions, systems of ordinary equations. Legendre and Bessel equations.

**557 Fourier Series and Boundary Value Problems U G 5**

(626) *Sp. 5 cl.*

*Prereq.: (608) or 556 or 255.*

*Not open to students with credit for 412 or 602.*

Expansion of function in Fourier series and in series of Legendre polynomials or Bessel functions; solution of boundary value problems from physics.

**560 Topology U G 5**

(643) *Sp. 5 cl.*

*Prereq.: 254.*

Sets and functions, metric spaces, completeness, Baire's Theorem, continuous mappings, Euclidean spaces, compactness, connectedness, topological spaces.

**570 Elementary Modern Algebra U G 5**

(641) *A. 5 cl.*

*Prereq.: (537) or 153.*

An introduction to abstract algebra with topics from elementary ring, field, and group theories. Special emphasis on ring of integers, congruences, polynomial domains, permutation groups.

**571 Matrices and Determinants U G 5**

(670) *W. 5 cl.*

*Prereq.: (537) or 153.*

The fundamentals of matrix theory with emphasis on determinants, systems of linear equations, vector spaces rank, characteristic polynomial, similarity and congruence transformations.

**573 Elementary Number Theory U G 5**

(680) *Sp. 5 cl.*

*Prereq.: (537) or 153.*

Prime numbers, congruences, Diophantine equations, the quadratic reciprocity law, and selected topics; utilization of concrete examples to introduce concepts of modern algebra.

**574 Geometry U G 5***Sp. 5 cl.**Prereq.: 570, 571.*

Euclidean and non-Euclidean geometry, emphasizing algebraic connections. Affine and projective planes, duality. Topics from: geometry of groups, finite planes, Hilbert's postulates,  $n$ -dimensional spaces, continuous geometry.

**593 Individual Studies in Mathematics U 2-5***A, W, Sp.**Prereq.: Permission of instructor.**Repeatable.***601 Mathematical Methods in Science I U G 5***(729) A. 5 cl.*

*Prereq.: 15 hrs. of Math. at the 400-500 level or permission of the instructor. The recommended preliminary courses are 550, 551, 552.*

Theory of determinants and matrices, real quadratic and Hermitian forms, groups and vector spaces, applications to physics and engineering.

**602 Mathematical Methods in Science II U G 5***(721) W. 5 cl.**Prereq.: 601.*

Linear differential equations, solutions about singular points; Fourier series; Sturm-Liouville problems; Bessel functions and Legendre polynomials; boundary value problems associated with Laplace's equation.

**603 Stability Problems in Differential Equations U G 3***(730) Sp. 3 cl.**Prereq.: (608) or 255 or 556.*

Existence and uniqueness of solutions; initial conditions; periodic solutions; Kryloff-Bogoljuboff method; graphical and numerical methods; applications to vibrational problems, relaxation theory, and nonlinear mechanics.

**608 Advanced Geometry II U G 5***Sp. 5 cl.**Prereq.: 507 and permission of instructor.*

Continuation of 507 and selected topics.

**611 Principles of Mathematics for Science and Mathematics Teachers U G 5***(642) Su. 5 cl.**Prereq.: Permission of instructor.**(NSF students only).*

Introduction to modern mathematics, sets, functions, topology.

**612 Modern Geometry for High School Teachers U G 5***(645) Su. 5 cl.**(NSF students only).*

Coordinate geometry use of vectors in geometry, matrices and coordinate transformations, matrix-vector operations, characteristic values, diagonalization of quadratic forms.

**613 Modern Algebra for High School Teachers U G 5***(646) Su. 5 cl.**(NSF students only).*

A basic modern algebra course for teachers of algebra. Topics will include: groups, rings, integral domains, fields, an axiomatic approach to high school algebra.

**614 Analysis for High School Teachers U G 5***(647) Su. 5 cl.**(NSF students only).*

Extension of the rational number concept to the real number concept, functions, limit concept, sequences, continuous functions, derivative, integral series, applications of the calculus.

**620 Applied Stochastic Processes U G 5***A. 3 cl.**Prereq.: 520.*

Normal processes and covariance stationary processes, counting processes and Poisson processes, renewal processes.

**621 Mathematical Statistics III U G 3***Sp. 3 cl.**Prereq.: 521.*

Continuation of 520, 521 covering topics from regression analysis and analysis of variance, i.e., linear models.

**622 Survey and Sampling Theory U G 3***A. 3 cl.**Prereq.: 621 or permission of instructor.*

Sampling from finite populations, multistage sampling, stratification, regression and ratio estimates, non-sampling errors, applications to large scale sample surveys.

**629 Statistics Laboratory U G 1-5***A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Experience is given the student in working with real data through association with current projects in the Statistics Laboratory.

**641 Programming for Digital Computers II U G 5***A, Sp. 5 cl.**Prereq.: 543.*

Symbolic assembly language and macro assembler programmings; organization and data flow in typical computers.

**642 Numerical Analysis II U G 5***(694) Sp. 4 cl., 1 2-hr. lab.**Prereq.: 541 and 571 or 601, or permission of instructor.*

Numerical solution of differential equations, inversion of matrices characteristic roots of matrices, linear programming.

**643 Linear Programming U G 5***A. 5 cl.**Prereq.: 642 or permission of instructor.*

Theory of linear programming methods; problem formulation; study of principal features of L/P codes; post-optimal analysis.

**645\* Numerical Solution of Differential Equations U G 5***(698) W. 3 cl., 2 2-hr. lab.**Prereq.: 541 and 556 or permission of instructor.*



Ordinary differential equations: Milne's method. Simpson's method, etc. Two point boundary problems. Hyperbolic, elliptic, parabolic partial differential equations. Advanced programming techniques. Experiments using computers.

**651 Introduction to Real Analysis I** U G 5  
A. 5 cl.  
Prereq.: Permission of instructor.  
Real numbers, infinite sequences and series.

**652 Introduction to Real Analysis II** U G 5  
W. 5 cl.  
Prereq.: 651.  
Classes of functions, Riemann-Stieltjes integral.

**653 Introduction to Real Analysis III** U G 5  
Sp. 5 cl.  
Prereq.: 652.  
Measurable sets and functions, elementary theory of the Lebesgue integral.

**662 Calculus of Variations** U G 5  
A. 5 cl.  
Prereq.: 255 or 556; 551.  
Variation of a functional; Euler-Lagrange equations; Hamilton-Jacobi theory; second variation Theory of field; Noether theorem; direct methods; applications to geometry and physics.

**670 Algebra I** U G 5  
A. 5 cl.  
Prereq.: Permission of instructor.  
Elementary number theory, polynomials, Euclidean domains; elementary theory of groups and fields, vector spaces and modules over a ring, linear transformations, determinants, normal form of matrices, quadratic forms.

**671 Algebra II** U G 5  
W. 5 cl.  
Prereq.: 670.  
Continuation of 670.

**672 Algebra III** U G 5  
Sp. 5 cl.  
Prereq.: 671.  
Continuation of 671.

**674 Topics in Combinatorial Mathematics** U G 5  
A. 5 cl.  
Prereq.: 672 or permission of instructor.  
Permutations, combinations, partitions, latin squares, finite geometries.

**680 Projective Geometry** U G 5  
(749) A. 5 cl.  
Prereq.: 672.  
The combinatorial and algebraic aspects of projective geometry, including non-Desarguesian and finite projective planes, coordination, the theory of collineations, incidence matrices, latin squares.

**693 Individual Studies in Mathematics** U G 1-5  
(700) A, W, Sp.  
Individual conferences, assigned readings, and reports on minor investigations.

**694 Special Topics in Mathematics** U G 2-5  
(699) A, W, Sp.  
Prereq.: Permission of instructor. Repeatable.  
This course is intended to give groups of students an opportunity to pursue special studies not otherwise offered.

**701 Mathematical Methods in Science III** U G 5  
(722) Sp. 5 cl.  
Prereq.: 571 or 601 or permission of instructor.  
Introduction to tensor analysis with applications to geometry. Elements of the calculus of variations with applications to physical problems.

**702 Integral Equations and Eigenvalue Problems I** U G 3  
(728) A. 3 cl.  
Prereq.: 601 and 602.  
Orthogonal functions, linear, integral equations of first and second kinds, relations to ordinary differential equations, Volterra's equation, boundary value problems, practical methods of solution.

**703 Integral Equations and Eigenvalue Problems II** U G 3  
(726) W. 3 cl.  
Prereq.: 702.  
Distribution of eigenvalues, self-adjointness, definiteness, Green's functions, minimal properties, approximation of eigenvalues, eigenfunction expansions, Ritz method, iteration method, matrix eigenvalue problems, finite differences.

**704 Operational Calculus** U G 3  
(727) Sp. 3 cl.  
Prereq.: 601 and 602.  
Laplace transformation in real domain, applications in physics and engineering; differential equations; Laplace transformation in complex domain, application to partial differential equations; Fourier transform, applications.

**705 Special Functions** U G 3  
(728) W. 3 cl.  
Prereq.: 601 and 602.  
Power series developments, asymptotic expansion, gamma functions, cylindrical functions, spherical harmonics, orthogonal polynomials, hypergeometric functions, theta functions, elliptic functions and integrals, numerical techniques.

**706 Applied Complex Analysis** U G 5  
(729) Sp. 5 cl.  
Prereq.: 414, or 552 and 556. Students are urged to fulfill the prereq. with 552.

Basic facts of complex analysis; conformal mapping properties of elementary functions, Schwartz-Christoffel formula; distortion theorems; uniformization; applications to electromagnetic fields, fluid dynamics, heat flow.

**720 Analysis of Variance** U G 3  
A. 3 cl.  
Prereq.: 550, 571, 521.  
General linear hypothesis, random components, mixed models.

**721 Design and Analysis of Experiments U G 3**

(733) W. 3 cl.

Prereq.: 720.

Experimental designs, efficiency, latin squares, balanced blocks, power functions, planned experiments.

**722 Theory of Probability U G 3**

(731) A. 3 cl.

Prereq.: 653.

General probability distributions, Stieltjes integral, characteristic functions, limit theorems.

**725† Sequential Procedures in Statistics U G 3**

Sp. 3 cl.

Prereq.: 521, 550.

Sequential tests of hypotheses and their operating characteristics, Wald's SPRT tests, sequential estimation, sequential designs and multiple decision procedures.

**726 Multivariate Analysis I U G 3**

Sp. 3 cl.

Prereq.: 571, 521, and 551 or 653.

Multivariate normal distribution, Wishart distribution, Hotelling's  $T^2$  multivariate analysis of variance, multiple correlation, roots of determinant equations, discriminant functions, applications.

**727† Multivariate Analysis II U G 3**

W. 3 cl.

Prereq.: 726.

Continuation of 726.

**728† Order Statistics U G 3**

Sp. 3 cl.

Prereq.: 521, 551 or 653.

Exact and asymptotic distributions and moments of order statistics, estimating parameters and testing hypotheses using order statistics, confidence intervals and tolerance regions.

**729† Nonparametric Statistics U G 3**

A. 3 cl.

Prereq.: 728.

Theory of testing hypotheses, single, double and k sample problems, rank orders, measures of correlation, large sample properties.

**740 Advanced Systems Programming U G 5**

(790) W. 5 cl.

Prereq.: 641 or permission of instructor.

Design of symbolic programming systems and algebraic compilers dynamic storage assignments; symbol manipulation, information retrieval, and related topics; classroom exercises involve use of computers.

**741 Mathematical Foundations of the Design and Use of Automatic Systems I U G 3**

(793) A. 3 cl.

Prereq.: Graduate standing or permission of instructor.

Boolean operations. Reduction of systems of Boolean functions. Turing machines and general recursive functions. Application to problems relating to design and use of automatic systems.

**742 Mathematical Foundations of the Design and Use of Automatic Systems II U G 3**

(794) W. 3 cl.

Prereq.: 741 and graduate standing or permission of instructor.

Continuation of 741.

**743 Mathematical Foundations of the Design and Use of Automatic Systems III U G 3**

(795) Sp. 3 cl.

Prereq.: 742 and graduate standing or permission of instructor.

Continuation of 742.

**746 Advanced Numerical Analysis U G 5**

W. 5 cl.

Prereq.: 642 and 645 or permission of instructor.

A careful treatment of some of the principal numerical algorithms; complete error analysis; recent developments will be emphasized.

**749† Advanced Mathematical Logic I U G 5**

A. 5 cl.

Prereq.: 545 or 670.

A study of the axiomatic method; the classical theorems of Skolem and Gödel; some modern results about model-classes and the theory of definability; axiomatic number-theory and set-theory.

**750 Real Analysis I U G 5**

(701) A. 5 cl.

Prereq.: 653.

Relative extremes in partial orders; additive and countable additive set functions; extensions of set functions; integration Differentiation, applicators.

**751 Real Analysis II U G 5**

(702) W. 5 cl.

Prereq.: 750.

Continuation of 750.

**752 Real Analysis III U G 5**

Sp. 5 cl.

Prereq.: 751.

Continuation of 751.

**753 Introduction to Complex Analysis I U G 5**

(801) A. 5 cl.

Prereq.: 653.

Families of holomorphic and meromorphic functions, geometrical methods of the theory of functions, conformal transformations; including the Cauchy integral theorem, Runge's theorem, Riemann mapping theorem.

**754 Introduction to Complex Analysis II U G 5**

(802) W. 5 cl.

Prereq.: 753.

Analytic continuation, general analytic functions, algebraic, entire, elliptic, the gamma and zeta function, Dirichlet's series, Picard's theorems, Mittag-Leffler's theorem, Stirling's formula.



**755 Introduction to Point Set Topology I U G 5**

(741) A. 5 cl.

Prereq.: 653.

Topographical spaces, convergence; metric, complete, compact, connected, uniform and function spaces.

**756 Introduction to Point Set Topology II U G 5**

(742) W. 5 cl.

Prereq.: 755.

Continuation of 755.

**760\* Ordinary Differential Equations I U G 3**

A. 3 cl.

Prereq.: 571, 653.

Introduction to theory of linear and non-linear ordinary differential equations; equations with singular points; stability theory, boundary value problems.

**761\* Ordinary Differential Equations II U G 3**

W. 3 cl.

Prereq.: 760.

Continuation of 760.

**762\* Ordinary Differential Equations III U G 3**

Sp. 3 cl.

Prereq.: 761.

Continuation of 761.

**763†\* Partial Differential Equations and Their Applications I U G 3**

(807) A. 3 cl.

Prereq.: 653.

First order partial differential equations, theory of characteristics. Second order partial differential equations. Elliptic, parabolic, hyperbolic equations; standard method of solution, Greens function. Integral equations.

**764†\* Partial Differential Equations and Their Applications II U G 3**

(808) W. 3 cl.

Prereq.: 763.

Continuation of 763.

**767 Introduction to the Theory of Approximation I U G 5**

(704) A. 5 cl.

Prereq.: 653.

Approximation by polynomials and trigonometric polynomials, Chebyshev's theory of best approximation and its generalizations. Interpolation processes and Mechanical Quadrature. Orthogonal Polynomials and elements of Harmonic Analysis.

**768 Introduction to the Theory of Approximation II U G 5**

(705) W. 5 cl.

Prereq.: 550, 767.

A continuation of 767.

**770 Higher Algebra I U G 5**

(761) A. 5 cl.

Prereq.: 672.

Fields, extensions, normal extensions, algebraic closure, Galois group of a polynomial, theory of equations, topics in ideal and valuation theory, rings with minimum conditions crossed products.

**771 Higher Algebra II U G 5**

(762) W. 5 cl.

Prereq.: 770.

A continuation of 770.

**772 Higher Algebra III U G 5**

(763) Sp. 5 cl.

Prereq.: 771.

A continuation of 771.

**779 Experimental Number Theory U G 2-5**

A, W, Sp. 3 cl., 2 labs.

Prereq.: Permission of instructor.

Topics from elementary and/or algebraic number theory; number theoretical explorations utilizing high-speed digital computers.

**780 Number Theory I U G 5**

A. 3 lec., 2 seminars.

Prereq.: 672.

Diophantine equations, Congruences, p-adic numbers, algebraic number theory, class numbers, distribution of primes, continued fractions.

**781 Number Theory II U G 5**

W. 3 lec., 2 seminars.

Prereq.: 780.

Continuation of 780.

**782 Number Theory III U G 5**

Sp. 3 lec., 2 seminars.

Prereq.: 781.

Continuation of 781.

**794 Advanced Studies in Mathematics U G 2-5**

(798) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

When students' need is sufficient, the Department will offer under this number a course on some phase of mathematics not covered in its regular offerings.

**824 Statistical Inference I G 3**

(734) W. 5 cl.

Prereq.: 722 and 521.

Classical and modern statistical inference from advanced point of view, Estimation, principles of maximum likelihood, Asymptotic theory; completeness, sufficiency and invariance.

**825 Statistical Inference II G 3**

Sp. 3 cl.

Prereq.: 824.

**826 Statistical Decision Theory I G 3**

A. 3 cl.

Prereq.: 825.

Introduction to the theory of games, statistical games, admissibility and completeness, complete class theorem, principles of sufficiency and invariance, sequential games.

- 827 Statistical Decision Theory II** G 3  
W. 3 cl.  
Prereq.: 826.  
Continuation of 826.
- 828 Statistical Multiple Decision Procedures** G 3  
Sp. 3 cl.  
Prereq.: Permission of instructor.  
Comparisons with a standard, the ranking of parameters—different formulations, some multivariate and non-parametric problems of ranking and selection.
- 830 Advanced Probability I** G 3  
(855) A. 3 cl.  
Prereq.: 751 and permission of instructor.  
Selected topics from foundations, martingales and stochastic processes.
- 831 Advanced Probability II** G 3  
(856) W. 3 cl.  
Prereq.: 830.  
Continuation of 830.
- 832 Advanced Probability III** G 3  
(857) Sp. 3 cl.  
Prereq.: 831.  
Continuation of 831.
- 844† Advanced Mathematical Logic II** G 5  
W. 5 cl.  
Prereq.: 749.  
Continuation of 749.
- 846 Topics in Discrete Mathematics** G 2-5  
W. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable.
- 847 Transfinite Arithmetic I** G 5  
(830) A.  
Prereq.: 750 and 770.  
Axiomatic Set Theory. Ordinal numbers and Transfinite functions. Polynomial representation. Normal forms. Number classes. Inequalities for cardinal numbers. Consequences of the continuum hypothesis. Inaccessible numbers.
- 848 Transfinite Arithmetic II** G 5  
(831) W.  
Prereq.: 847.  
Continuation of 847.
- 851† Differential Geometry I** G 3  
(841) A. 3 cl.  
Prereq.: 751, 756, 771.  
Curves, surfaces, fundamental forms, tensors and connections.
- 852† Differential Geometry II** G 3  
(842) W. 3 cl.  
Prereq.: 851.  
Continuation of 851.
- 854 Differentiable Manifolds and Lie Groups I** G 5  
W. 5 cl.  
Prereq.: 751, 756, 771.  
Tensors, exterior differential forms, connections, Lie Groups.
- 855 Differentiable Manifolds and Lie Groups II** G 5  
Sp. 5 cl.  
Prereq.: 854.  
Continuation of 854.
- 857 Introduction to Functional Analysis I** G 3  
(750) A. 3 cl.  
Prereq.: 552, 751 or equiv.  
Linear topological spaces, normed spaces, Hilbert spaces, convex sets, integration of vector-valued functions.
- 858 Introduction to Functional Analysis II** G 3  
(751) W. 3 cl.  
Prereq.: 857.  
Continuation of 857.
- 859 Introduction to Functional Analysis III** G 3  
(821) Sp. 3 cl.  
Prereq.: 857, 858.  
Banach Algebras, spectral theory, harmonic analysis, fixed-point theorems. Applications to analysis.
- 860† Algebraic Topology I** G 3  
A. 3 cl.  
Prereq.: 751, 756, 771.  
Metric space topology, complexes in Euclidean spaces, singular homology theory.
- 861† Algebraic Topology II** G 3  
W. 3 cl.  
Prereq.: 860.  
Continuation of 860.
- 862† Algebraic Topology III** G 3  
Sp. 3 cl.  
Prereq.: 861.  
Continuation of 860, 861.
- 863† Potential Theory I** G 3  
(817) A.  
Prereq.: 552 and permission of instructor.  
Newtonian Potentials, Boundary Value Problems. Logarithmic Potential, Elliptic Partial Differential Equations.
- 864† Potential Theory II** G 3  
(818) W.  
Prereq.: 863.  
Continuation of 863.
- 865 Topics in Mathematical Physics** G 2-5  
A. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable.



- 866 **Mathematical Problems in Engineering** G 2-5  
 Sp. 2-5 cl.  
 Prereq.: Permission of instructor.  
 Repeatable.
- 867†\* **Dimension Theory** G 5  
 (815) Sp. 5 cl.  
 Prereq.: 751, 756, and 771.  
 Dimension in separable metric spaces with application of Euclidean spaces. Covering theorems, imbedding theorems, and approximation theorems. Relationships between the concept of dimension and measure.
- 869 **Mathematical Theory of Communication and Control** G 2-5  
 Sp. 2-5 cl.  
 Prereq.: Permission of instructor.  
 Repeatable.
- 873 **Group Theory I** G 5  
 (871) A. 5 cl.  
 Prereq.: 771.  
 Properties of groups, extensions, transfer, generators and defining relations.
- 874 **Group Theory II** G 5  
 (872) W. 5 cl.  
 Prereq.: 873.  
 Continuation of 873.
- 876\* **Analytic Number Theory** G 5  
 (873) A, W. 5 cl.  
 Prereq.: Permission of instructor.  
 The distribution of prime numbers. Waring's problems, and selected topics.
- 877\* **Theory of Algebraic Numbers** G 5  
 (880) W, Sp. 5 cl.  
 Prereq.: Permission of instructor.  
 Ideals in algebraic number fields, unique decomposition into prime ideals differenta and discriminant, ideal classics, application of Galois theory and analytical methods to the theory of algebraic numbers of prime ideals.
- 925 **Advanced Topics in Mathematical Statistics I** G 3  
 (849) W. 3 cl.  
 Prereq.: Permission of instructor.  
 Topics to be taken from the following: multivariate analysis, stochastic processes, analysis of variance, components of variance models, advanced test design.
- 926 **Advanced Topics in Mathematical Statistics II** G 3  
 (850) Sp. 3 cl.  
 Prereq.: 925.  
 Continuation of 925.
- 931 **Ergodic Theory I** G 3  
 A. 3 cl.  
 Prereq.: 751.  
 Measurable transformations, mixing and ergodicity, existence of invariant measures, contraction operations on function spaces, ergodic theorems.
- 932 **Ergodic Theory II** G 3  
 W. 3 cl.  
 Prereq.: 931.  
 Continuation of 931.
- 933† **Sums of Independent Random Variables I** G 3  
 A. 3 cl.  
 Prereq.: 830 or 722 and 751.  
 Limit theorems for sums of independent random variables, infinitely divisible distributions, stable laws.
- 934† **Sums of Independent Random Variables II** G 3  
 W. 3 cl.  
 Prereq.: 933.  
 Continuation of 933.
- 935† **Random Walks and Brownian Motion I** G 3  
 W. 3 cl.  
 Prereq.: 830 or 722 and 751.  
 Recurrence, periodicity, hitting probabilities, potential theory, recurrent and transient random walks, Brownian motion.
- 936† **Random Walks and Brownian Motion II** G 3  
 Sp. 3 cl.  
 Prereq.: 935.  
 Continuation of 935.
- 937† **Semi Groups and Markov Processes I** G 3  
 W. 3 cl.  
 Prereq.: 751.  
 Sample functions and semi groups generated by Markov processes. General potential theory including Green's Function and generalized capacity.
- 938† **Semi Groups and Markov Processes II** G 3  
 Sp. 3 cl.  
 Prereq.: 937.  
 Continuation of 937.
- 949 **Seminar in Logic** G 2-5  
 A, W, Sp.  
 Prereq.: Permission of instructor.  
 Repeatable.
- 950 **Topics in Real Analysis** G 2-5  
 A, W, Sp.  
 Prereq.: Permission of instructor.  
 Repeatable.
- 951 **Topics in Complex Analysis** G 2-5  
 A, W, Sp. 2-5 cl.  
 Prereq.: 754.
- 954 **Topics in Algebraic Topology** G 2-5  
 A, W, Sp.  
 Prereq.: Permission of instructor.  
 Repeatable.

- 957 Topics in Differential Geometry** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 959 Measure and Integration I** G 4  
(826) A. 4 cl.  
*Prereq.: 751.*  
Topics will be chosen from current research papers.

- 960 Measure and Integration II** G 4  
(827) W. 4 cl.  
*Prereq.: 959.*  
Continuation of 959.

- 961 Topics in Functional Analysis** G 2-5  
A, W, Sp. 2-5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.

- 970 Representation Theory I** G 5  
A. 5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.

- 971 Representation Theory II** G 5  
W. 5 cl.  
*Prereq.: 970.*  
Continuation of 970.

- 972 Combinatorial Analysis** G 5  
(864) Sp. 5 cl.  
*Prereq.: 771.*  
Topics selected from current research papers.

- 973 Homological Algebra I** G 5  
A. 5 cl.  
*Prereq.: 772.*  
Introduction into the basic concepts of homological module theory.

- 974 Homological Algebra II** G 5  
W. 5 cl.  
*Prereq.: 973 or permission of instructor.*  
Continuation of 973.

- 975 Topics in Geometry** G 5  
A, W, Sp. 5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.

- 978 Theory of Rings** G 5  
(819) A, W, Sp. 5 cl.  
*Prereq.: 772.*  
Topics selected from current research papers.

- 979 Theory of Matrices** G 5  
(862) A, W, Sp. 5 cl.  
*Prereq.: 771.*  
Topics selected from current research papers.

- 980 Lattice Theory** G 5  
(865) A, W, Sp. 5 cl.  
*Prereq.: 771.*  
Topics selected from current research papers.

- 981 Topics in the Theory of Groups** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 982 Topics in Algebra** G 5  
A, W, Sp. 5 cl.  
*Prereq.: Permission of instructor.*  
Topics selected from current research papers.

- 983 Topics in Number Theory** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 984 Topics in Algebraic Geometry** G 5  
A, W, Sp. 5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.

- 985 Seminar in Group Theory** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 986 Seminar on Algebra** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 987 Seminar on Commutative Algebra** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 988 Seminar on Number Theory** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 989 Seminar on Geometry of Numbers** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 990 Seminar on Geometry** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 996 Seminar in Analysis** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 997 Seminar in Topology** G 2-5  
A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable.*



- 998 Seminar in Applied Mathematics G 2-5**  
*A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable.*

- 999 Research G 2-15**  
*(950) A, W, Sp.*  
*Repeatable.*  
 Research for thesis or dissertation purposes only.

#### Computer Science Courses:

241, 541, 543, 641, 642, 643, 645, 694, 740, 746.

*(Information about other courses related to computer science may be obtained from an adviser in that area.)*

- 503 Fluid Dynamics U G 5**  
*(609) A, Sp. 3 cl.*  
*Prereq.: 502.*  
 A basic study of fluid dynamics. *Hans.*

- 505 Hydraulic Laboratory U 1**  
*(672) A. 1 3-hr lab.*  
*Concur.: Civil E. 512*  
 A study of incompressible fluid flow through various primary elements and through a centrifugal pump. *Buxton.*

- 510 Heat Transfer U G 4**  
*(610) A, W. 4 cl.*  
*Prereq.: (605) or 503.*  
*Not for graduate credit to students majoring in Mech. E.*  
*Not open to students with credit for (611).*

A study of the fundamental laws of heat conduction, radiation, and convection, including an introduction to transient conduction. *Jordan.*

- 511 Heat Transfer and Fluid Flow U 5**  
*(621) A, Sp. 5 cl.*  
*Prereq.: 500.*  
*Not open to students majoring in Mech. E.*

A study of the fundamental principles of heat transfer and fluid flow in the design of heat exchange equipment with applications to electrical machinery and apparatus. *Jordan.*

- 520 Principles of Heat Generation U G 3**  
*(614) W, Sp. 3 cl.*  
*Prereq.: 510 or (611).*  
*Not for graduate credit to students majoring in Mech. E.*  
*Not open to students with credit for (606).*

A quantitative and qualitative study of heat generation including molecular and nuclear processes. *Marco.*

- 550 Machine Design U G 5**  
*(736) W, Sp. 5 cl.*  
*Prereq.: Engr. Mech. 420.*  
*Not open to students majoring in Mech. E.*

A study of the application of the general principles and empiricisms of mechanics of solids to the creative design of mechanical equipment. *Starkey.*

- 551 Kinematics of Machines U G 5**  
*(615) A, Sp. 5 cl.*  
*Prereq.: Professional division standing.*  
*Not for graduate credit to students majoring in Mech. E.*

A study of displacements, velocities, and accelerations of machine members using graphical and numerical methods of analysis. *McLarnan.*

- 552 Dynamics of Machinery U G 4**  
*(616) A, W. 4 cl.*  
*Prereq.: 551, Engr. Mech. 410, and Math. 255 or (608).*  
*Not for graduate credit to students majoring in Mech. E.*  
*Not open to students with credit for (620).*

A study of the interrelationships among forces, motions, and masses as related to rigid or elastic machine members, including force analysis, vibration, impact, and balancing. *Starkey.*

## Mechanical Engineering

*Office: 2075 Robinson Laboratory, 206 West 18th Avenue South.*

*PROFESSORS* †MARCO (Chairman), BEITLER (Emeritus), BOLZ, BUCHER (Emeritus), †HAN, †JONES, MARQUIS (Emeritus), MOFFAT (Emeritus), NORMAN (Emeritus), †STARKEY, STINSON (Emeritus), and †ZIMMERMAN; *ASSOCIATE PROFESSORS* †DOEBELIN, †ENGELMAN, †GLOWER, †HORNUNG, †McLARNAN, †SEPSY, SMITH, and †VELKOFF; *ASSISTANT PROFESSORS* †BEANS, †BRIDGE, †BUXTON, †DAVIDSON, †FOSTER, JOHNSON, JORDAN, and YU.

- 450 Materials of Engineering U 4**  
*(627) A, W. 4 cl.*  
*Prereq.: Professional division standing.*

A study of the structure of engineering materials and of their properties as used in engineering design. *Foster.*

- 500 Thermodynamics U G 5**  
*(601) W, Sp. 5 cl.*  
*Prereq.: Math. 254 and Physics 232.*  
*Not open to students majoring in Mech. E.*

A study of the principles of thermodynamics as an engineering science. *Marco.*

- 501 Thermodynamics U G 3**  
*(607) A, W. 5 cl.*  
*Prereq.: Professional division standing.*  
*Not for graduate credit to students majoring in Mech. E.*  
*Not open to students with credit for (600)-(604)-(605).*

A study of basic engineering thermodynamics. *Marco.*

- 502 Thermodynamics U G 5**  
*(608) W, Sp. 5 cl.*  
*Prereq.: 501, or Chem. 531 and Physics 541.*  
 Continuation of 501.

**588 Professional Aspects of Mechanical Engineering U 1**

(770) A. 1 cl.

Prereq.: Mech. E. Professional Division 3rd yr. standing.

A study of the code of ethics, licensing law, responsibilities to professional societies and the relationships to labor and management of the professional engineer. *Marco.*

**612 Principles of Heat Exchangers U G 3**

(724) W, Sp. 3 cl.

Prereq.: 510.

Not for graduate credit to students majoring in Mech. E.

A study of principles of heat and mass transfer as applied to the design of heat exchangers. *Jones.*

**613 Cryogenic Systems U G 3**

(756) Sp. 3 cl.

Prereq.: 500 or (605) or 503, and 510 and 511.

Study of low-temperature processes and equipment; physical properties at low-temperatures; practical application of low-temperature techniques and processes in engineering systems. *Marco.*

**621 Principles of Energy Conversion U G 3 in Positive Displacement Machinery**

(722) A, Sp. 3 cl.

Prereq.: (605) or 503, and (606) or 520.

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for (625).

A study of the principles of energy conversion and transfer, performance and physical characteristics of power-absorbing, power-generating, and power-transmitting positive displacement machinery. *Jones.*

**624 Principles of Energy Conversion U G 3 in Turbomachinery**

(721) W, Sp. 3 cl.

Prereq.: (605) or 503.

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for (720).

A study of the principles of energy conversion and transfer, performance and physical characteristics of power-absorbing, power-generating, and power-transmitting turbomachinery. *Jones.*

**625 Vapor Power Cycles U G 3**

(745) A. 3 cl.

Prereq.: (605) or 503, 510, and 520.

A descriptive and analytical study of elementary and advanced power plant cycles. *Buxton.*

**640 Principles of Environmental Control U G 3**

(723) A, Sp. 3 cl.

Prereq.: 510 or (611), and 552 or (620).

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for 741.

A study of the principles of the control of environments for human occupation, occupation by other living beings, the operation of mechanical and electrical equipment, and for the storage and processing of materials. *Sepsy.*

**661 Principles of Mechanical Design U G 4**

(767) A, W. 4 cl.

Prereq.: 450 or Met. E. 451, Engr. Mech. 521 or 522, Indust. E. 401 and Math. 421.

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for (727)-(728)-(744), (727)-(728)-(743), or (727)-(733)-(743).

A study of the application of the general principles and empiricisms of mechanics of solids to the creative design of mechanical equipment. *Starkey.*

**662 Principles of Mechanical Design U G 4**

(768) W, Sp. 4 cl.

Prereq.: 552 or (620) and 661.

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for (727)-(728)-(744), (727)-(728)-(743), or (727)-(733)-(743).

Continuation of 661. *Starkey.***663 Principles of Mechanical Design U G 4**

(769) A, Sp. 4 cl.

Prereq.: 552 or (620) and 661.

Continuation of 661.

**670 Mechanical Engineering Measurements U G 3**

(778) A, Sp. 1 cl., 1 4-hr. lab.

Prereq.: (605) or 503, 510 or (611), and 552 or (620).

Not for graduate credit to students majoring in Mech. E.

Not open to students with credit for (664) and (665).

A theoretical and experimental study of the principles of operation and performance characteristics of measuring instruments used in mechanical engineering. *Doebelin.*

**693 Special Problems in Mechanical Engineering U G 2-10**

(799) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 24 cr. hrs. with a maximum of 10 cr. hrs. in any one subdivision.

This course is intended to give the advanced student opportunity to pursue special studies not otherwise offered. Work undertaken will be selected from automotive and internal combustion machinery, combustion and fuels, heat transfer, heating, ventilating, and air conditioning, industrial hydraulics, machine design, refrigeration, steam power plants, and thermodynamics.

**720 Internal Combustion Engines U G 3**

(703) A. 3 cl.

Prereq.: (625), or 520 and 621.

A study of combustion chambers, valve mechanisms, and the dynamic balance of internal combustion engines. *Engelman.*

**721 Internal Combustion Engines U G 3**

(704) W. 3 cl.

Prereq.: (625), or 520 and 621.

Force analysis as related to the design of engine components such as pistons, bearings, valve springs, and crankshafts. *Engelman.*



**722 Diesel Engines U G 3**(725) *Sp. 3 cl.**Prereq.: (625), or 520 and 621.*

An advanced study of Diesel engine operation, and economics. *Engelman.*

**724 Gas Turbine Power Plants U G 3**(726) *W. 3 cl.**Prereq.: (606) or 520, and (720) or 624.*

A study of the principles, performance, and design of gas turbine power plants. *Engelman.*

**726 Nuclear Power Plants U G 3**(755) *Sp. 3 cl.**Prereq.: 510 or (611), and (727) or 550 or 661, and Physics 472 or 571.*

A study of the thermal and mechanical design aspects of nuclear power plants and processes. *Jones.*

**741 Heating, Ventilating, and Air Conditioning U G 4**(710) *A. 4 cl.**Prereq.: 510 or (611), and 640.*

A study of practices, components and systems for conventional and unique air conditioning equipment used to control the environment for human occupancy, storage and industrial processes. *Sepsy.*

**742 Refrigeration and Air Conditioning U G 3**(716) *W. 3 cl.**Prereq.: 510 or (611), and 640.*

A study of fundamentals, processes and equipment associated with refrigeration systems using vapor compression, air cycle, absorption, magnetic and thermoelectric cooling. *Sepsy.*

**761 Mechanical Engineering Design I U G 3**(771) *A, W. 3 2-hr lab.**Prereq.: 624, 621, 640, 662, 663.**Not for graduate credit to students majoring in Mech. E.*

The methodology of intermediate design and practice in the design of a specific system which may utilize principles of any or all mechanical engineering disciplines. *Foster.*

**762 Mechanical Engineering Design II U G 3**(772) *W, Sp. 3 2-hr lab.**Prereq.: 761.**Not for graduate credit to students majoring in Mech. E.*

The methodology and practice in the preliminary design of an optimum system to fulfill a specified need utilizing principles of several mechanical engineering disciplines. *Foster.*

**763 Mechanical Engineering Design III U G 3**(773) *A, Sp. 3 2-hr. lab.**Prereq.: 762.**Not for graduate credit to students majoring in Mech. E.*

Continuation of 762.

**770 Advanced Mechanical Engineering Instrumentation U G 4**(761) *W. 3 cl., 1 2-hr lab.**Prereq.: (664) or 670, or equiv.*

A theoretical and experimental study of measurement instrumentation. Emphasis on both principles of operation and analysis and design techniques for measurement systems of a mechanical and electromechanical nature. *Doebelin.*

**771 Principles of Automatic Control U G 4**(762) *W, Sp. 3 cl., 1 2-hr lab.**Prereq.: (605) or 503, 510 or (611), 552 or (620), and 670, or permission of instructor.**Not open to students with credit for (760).*

A theoretical and experimental study of the principles of operation of feedback control systems, including servomechanisms and process controls. *Doebelin.*

**772 Control Systems Design U G 4**(763) *Sp. 3 cl., 1 2-hr lab.**Prereq.: (760) or 771 or permission of instructor.*

A study of the theoretical and experimental procedures involved in the design of feedback control systems including servomechanisms and process control. *Doebelin.*

**781 Mechanical Engineering Laboratory U G 3**(779) *W, Sp. 2 2-hr lab and 5 hrs. lab. planning and report writing.**Prereq.: (665) or 670.**Not for graduate credit for students majoring in Mech. E.*

The study and application of methods of experimental analysis. *Buxton.*

**782 Mechanical Engineering Laboratory U G 3**(780) *A, Sp. 2 2-hr. lab. and 5 hrs. lab. planning and report writing.**Prereq.: 781.*

Continuation of 781.

**794 Advanced Studies in Mechanical Engineering U G 3-5**(798) *A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 12 cr. hrs.*

Advanced topics in the various phases of Mech. E. The particular topics, the number of credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.

**801 Advanced Applied Thermodynamics G 3***A. 3 cl.**Prereq.: 500 or (605), and Math. 255, or equiv.*

An analytical study of the thermodynamics of fluid flow. *Marco.*

**802 Advanced Applied Thermodynamics G 3***W. 3 cl.**Prereq.: 500 or (605) and Math. 255 and 421, or equiv.*

A study of classical thermodynamics, systems in equilibrium, and the thermodynamics of irreversible phenomena. *Marco.*

**803 Advanced Applied Thermodynamics G 3***Sp. 3 cl.**Prereq.: 802.*

Continuation of 802.

**807 Advanced Heat Transfer G 3***W. 3 cl.**Prereq.: 510, and 881 or Math. 412, or Math. 557.*

A study of the general heat transfer equations and their applications to heat transfer in solids and through fluids. The use of numerical and graphical analysis will be included. *Han.*

**809†\* Advanced Heat Transfer G 3***A. 3 cl.**Prereq.: (808) and Math. 255, or equiv.*

A study of phase change and radiative heat transfer processes. *Marco.*

**810 Dynamics in Inviscid Fluids G 3***(853) W. 3 cl.**Prereq.: 503, and 881 or Math. 412, or equiv.*

*Not open to students with credit for (808) or (850).*

Three dimensional, compressible, and incompressible inviscid flows, including irrotational and rotational motion with and without flow discontinuities. *Han.*

**811 Laminar Flow and Heat Transfer G 5***(854) Sp. 5 cl.**Prereq.: 510 and 810.*

*Not open to students with credit for (808) or (850).*

Laminar boundary layers and fluid flow with and without heat transfer, fully established entrance flows, free convection, extensions to compressible flows. *Han.*

**812 Turbulent Flow and Heat Transfer G 5***(855) A. 5 cl.**Prereq.: 811.*

*Not open to students with credit for (808) or (850).*

Turbulent boundary layers and flows with and without heat transfer for internal and external flows including laminar instability, Reynolds stresses, and mixing length theory. *Marco.*

**820 Internal Combustion Power Plants G 3***(810) W. 3 cl.**Prereq.: 621 or equiv.*

An advanced study of reciprocating internal combustion power plants. *Engelman.*

**821† Advanced Principles of Energy Conversion in Turbomachinery G 3***(811) Sp. 3 cl.**Prereq.: 624 or equiv.*

An advanced study of power-absorbing, generating, and transmitting turbomachinery. *Jones.*

**822 Preliminary Design of Power Systems G Arr.***(812) A, W, Sp. Conf.**Prereq.: Permission of instructor.*

Preliminary design and evaluation of novel systems including analysis, synthesis, and possible experimental verification. *Engelman, Jones.*

**823† Advanced Steam Power Cycle and Turbine Analysis G 3***(830) W. 3 cl.**Prereq.: (805) or 503, 510, and 624.*

An advanced study of steam power cycles and design of steam turbine nozzles and blading. *Buxton.*

**824† Advanced Combined Vapor Power Cycle Analysis G 3***(831) Sp. 3 cl.**Prereq.: (805) and 823, or permission of instructor.*

A study of conventional and novel binary vapor cycles and combined vapor-gas power cycles. *Buxton.*

**825 Advanced Vapor Power Cycle and Component Studies G Arr.***(832) A, W, Sp. Conf.**Prereq.: 823 or 824, or permission of instructor.*

Courses to be conducted on a conference basis with problems assigned to each student based on his needs and area of interest. *Buxton.*

**830 Introduction of Electro and Magneto Fluid Mechanics G 3***Sp. 3 cl.**Prereq.: 510 and Math. 413, or permission of instructor.*

A study of the interactions of electric and magnetic fields with liquids and gases. *Velkoff.*

**840† Advanced Principles of Refrigeration G 3***(820) W. 3 cl.**Prereq.: 741 or equiv.*

Advanced study of conventional and novel processes including thermoelectric, magnetic, and gas systems. *Sepsy.*

**841 Advanced Environmental Control G 3***(821) Sp. 3 cl.**Prereq.: 640 or equiv.*

An advanced study of conventional and unique systems used to control the environment for occupancy by people, equipment, and material. *Sepsy.*

**842 Advanced Environmental Control Problems G Arr.***(822) A, W, Sp. Conf.**Prereq.: Permission of instructor.*

A study of methods of synthesis and analysis pertaining to the creative design of environmental control systems, involving conferences and theoretical and/or experimental investigations. *Sepsy.*

**850 Dynamics of High Speed Machinery G 3***(841) W. 3 cl.**Prereq.: 662 or 663, and Math. 255, or equiv.*

An advanced study of the interrelationships among forces, motions, and masses as related to rigid or elastic machine members. *Starkey.*



**851 Kinematic Synthesis and Analysis G 3**

(844) A. 3 cl.

Prereq.: 551, and 550 or 663.

A study of fundamental methods for the synthesis and analysis of motions in mechanical systems. *McLarnan*.

**860 Advanced Mechanical Design G 3**

(840) A. 3 cl.

Prereq.: 661 and Math. 255, or equiv.

A study of concepts, principles, and phenomenological theories related to the failure-prevention aspect of mechanical design. *Starkey*.

**861 Stress Analysis of Machinery G 3**

(843) Sp. 3 cl.

Prereq.: 550, or 662 and 663; 881 or Math. 412, or equiv.

A study of the concepts, principles, and procedures related to the analysis of stresses and strains in machine parts. *Starkey*.

**870 Modeling of Dynamic Systems G 4**

A. 3 cl., 1 2-hr. lab.

Prereq.: 772 and 880, or permission of instructor.

A study of theoretical, experimental, and computer methods for characterizing the dynamic behavior of systems in a form suitable for control system design. *Doebelin*.

**880 Lumped Parameter System Analysis G 3**

(860) A. 3 cl.

Prereq.: Math. 255 or equiv. or permission of instructor.

Lumped parameter system analysis of mechanical, thermal, hydraulic, pneumatic, and electromechanical systems. System response to periodic, transient, and random excitation. Computer and physical system demonstrations. *Doebelin*.

**881 Distributed Parameter Systems G 3**

(861) A. 3 cl.

Prereq.: 510 and Math. 255, or equiv.

Not open to students with credit for 807, (808), or (850).

Numerical and analytical methods for obtaining solutions to engineering problems in heat transfer, fluids mechanics, and other field problems. *Bridge*.

**888 Mechanical Engineering Seminar G 2**

(890) A, Sp. 4 cl.

Prereq.: Mech. E. grad. standing.

A group study of the frontiers of knowledge in Mech. E. by assignment of reading in technical literature, student presentations, and related group discussions.

**999 Research in Mechanical Engineering G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Medical Dietetics**

(School of Allied Medical Services)

Office: B-116 Starling Loving Hall, 320 West 10th Avenue. PROFESSOR LEWIS (Division Director); ASSOCIATE PROFESSOR WINTERFELDT; ASSISTANT PROFESSORS CASBERGUE, McCONKEY, PRIDEAUX, SCOBIE, SHARP, and WENBERG; INSTRUCTORS EMLEY and FLETCHER.

**201 Introduction to Medical Dietetics U 1**

(501) A. 2 cl.

Basic knowledge and experience in functional and sociological aspects of responsibilities of the Medical Dietitian. *Lewis and Staff*.

**310 Introduction to Patient Dietary Care U 6**

(510) Su. 4 cl., 6 hrs. clin. work.

Prereq.: Home Ec. 548.

Principles and practice in the dietary care of the hospital patient. *McConkey*.

**421 Management in Dietetics U 6**

(515) A. 2 cl., 2 4-hr. lab.

Prereq.: Home Ec. 314.

Management in food service systems emphasizing quality of food, production planning, work organization, financial controls in quantity food preparation for regular and modified diets. *Prideaux*.

**422 Management in Dietetics U 6**

(516) W. 3 cl., 3 3-hr lab.

Prereq.: 421.

Principles and recent trends in menu planning and food procurement in food service systems. Responsibility for writing and implementing menus in hospital food services. *Prideaux*.

**423 Management in Dietetics U 6**

(517) Sp. 4 cl., 8-hr. clinic.

Prereq.: 422, Bus. Org. 500, Psychol. 621.

Application of principles of personnel management as applied to food service systems. *Prideaux*.

**521 Nutrition and Human Metabolism U 5**

W. 4 cl., 2-hr. clin. lab. study.

Prereq.: Home Ec. 310, Physiol. Chem. 312, Physiol. 312, or equiv. Junior standing or permission of the instructor.

The metabolism of essential nutrients at the cellular and intact levels of organization, energy balance and composition of human body.

**522 Nutrition and Human Metabolism U 5**

Sp. 4 cl., 2-hr. clin. lab. study.

Prereq.: 521.

A continuation of 521.

**631 Nutrition in Disease U 6**

(601) Sp. 5 cl., 4-hr. clinical study.

Prereq.: 310, 521.

Causes, results and dietary management of alterations in nutritional processes. *Sharp and Medical Staff*.

**632 Nutrition in Disease U 6**

(602) Su. 5 cl., 4-hr. clinical study.

Prereq.: 631.

A continuation of 631.

**632 Nutrition in Disease U 6**

(602) Su. 5 cl., 4-hr. clinical study.

Prereq.: 631

A continuation of 631.

**636 Teaching of Dietetics U 3**

(626) Su, A, W, Sp. 2 cl., 3-hr. clinical study.

Prereq.: Med. Diet. senior standing.

Educational principles and practices as applied to the teaching responsibilities of the dietitian. *Wenberg.***637 Community Nutrition U 3**

(627) A, W, Sp. 2 cl., 4-hr. clinical study.

Prereq.: 632 or permission of instructor, concur. 636.

Public health nutrition programs and their services to the community, with particular reference to nutrition problems of special groups of the population. *Scobie.***638 Pediatric Nutrition U G 3**

(628) Su. 3 cl.

Prereq.: Graduate or senior standing in Med. Diet. and permission of instructor.

The nutrition of children: the influence of physical, psychological and social growth and development from infancy through adolescence. *Fletcher and Pediatric staff.***644 Medical Dietetics U 10**

(620) A. 4 cl., 24 hr. clinical study.

Prereq.: 423, 632.

Identification, evaluation and solution of problems relating to dietetic and nutritional care of individuals and groups. *Sharp and Casberque.***645 Medical Dietetics U 10**

(622) W. 4 cl., 24-hr. clinical study.

Prereq.: 644.

Continuation of 644.

**646 Advanced Therapeutic Dietetics U G 12**

W, Sp. 6 cl., 18 hr. clinical study.

Prereq.: 645, senior or graduate standing and permission of instructor.

Advanced study of disturbed metabolic processes affecting human nutrition and evaluation of complex dietetic problems accompanying them. *Lewis and staff.***693 Individual Studies in Nutrition U G 1-5 or Dietetics**

(785) Su, A, W, Sp.

Prereq.: Graduate or senior standing in Med. Diet. and permission of instructor.

Problems in various phases of nutrition or Medical Dietetics not included in current course offerings. *Lewis and Staff.***Medical Illustration**

(School of Allied Medical Services)

Office: N-431 University Hospital, 410 West 10th Avenue. ASSISTANT PROFESSOR SHEPARD (Division Director); INSTRUCTORS KREUTZFELD, OLLILA, and PROSSER.

**100 Medical Illustration Field Experience U 0**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Practical application of Medical Illustration techniques in a functioning hospital department of Medical Illustration.

**693 Special Problems U 5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 45 cr. hrs.

Advanced study for students in Medical Illustration including preparation of charts, graphs, medical and surgical illustrations, exhibits and general work for a medical center.

**Medical Microbiology**

Office: M-110 Starling Loving Hall, 320 West 10th Avenue. PROFESSORS †CRAMBLETT (Chairman) and †MACPHERSON; ASSOCIATE PROFESSORS †HAMPARIAN, †KAPRAL, SCHMITT, and †SOMERSON; ASSISTANT PROFESSORS †BOWMAN, HAYNES, OTTOLENGHI, and THORNE; INSTRUCTORS CONANT and TORBET.

**624 Medical Microbiology P G 7**

A. 3 2-hr. cl., 2 2-hr. labs.

Prereq.: Med. 2nd yr. standing.

Morphologic, physiologic and serologic characteristics of pathogenic microorganisms; the epidemiology and pathogenesis of infectious diseases; methods of diagnosis, prevention and treatment. *Cramblett and Staff.***625 Medical Microbiology P G 3**

W. 3 2-hr. cl., 2 2-hr. lab.

Prereq.: 624.

Continuation of 624. *Cramblett and Staff.***793 Individual Studies in Medical Microbiology**

Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

- |     |  |                       |
|-----|--|-----------------------|
| .01 | Diagnostic and Clinical Virology. 1, 2, 3 months. Feb., Mar., and Apr.   | P 6, 12, 18<br>G Arr. |
| .02 | Problems in Virology. 3 months. Feb. - July                              | P 18<br>G Arr.        |
| .03 | Problems in Experimental Bacterial Viruses. 1, 2, 3, 4 months. A. and W. | P 6, 24<br>G Arr.     |
| .04 | Problems in Mycoplasma Research. 3, 4 months. W, Sp.                     | P 18, 24<br>G Arr.    |

**Medical Technology**

(School of Allied Medical Services)

Office: N-329 University Hospital, 410 West 10th Avenue. PROFESSOR †MACPHERSON (Division Director); ASSISTANT PROFESSOR †SUTTON (Assistant Division Director); ASSOCIATE PROFESSOR †STEVENSON; ASSISTANT PROFESSORS †ALLEN, †GREIDER, †GRUEMER, and THORNE; INSTRUCTORS EARP, PALKUTI, and TORBET.

**511 Medical Technology Laboratory U 9**

(640) Su. 27 lab. hrs.

Prereq.: Med. Tech. 4th yr. standing.

Laboratory demonstrations and practice in hematologic techniques, clinical microscopy and urinalysis. *Stevenson and Staff.*



**512 Medical Technology Laboratory U 9**

(641) A. 27 lab. hrs.

Prereq.: Med Tech. 4th yr. standing.

Applied techniques and demonstrations in microbiology, immunology, mycology and parasitology. Macpherson, Sutton, and Wilson.

**513 Medical Technology Laboratory U 9**

(643) W. 27 lab. hrs.

Prereq.: Med Tech. 4th yr. standing.

Tissue technique; mycology and parasitology. Macpherson, Sutton, and Greider.

**514 Medical Technology Laboratory U 9**

(642) Sp. 27 lab. hrs.

Prereq.: Med Tech. 4th yr. standing.

Demonstrations and applied techniques in the quantitative chemistry of blood and other body fluids. Gruemer, Earp.

**515 Clinical Practice in Medical Technology U 10**

(646) Su, A, W, Sp. 5 8-hr. labs.

Prereq.: 511, 512, 513, 514.

Application of medical laboratory techniques under supervision in the clinical laboratories of University Hospital.

## Medicine

Office: N-1013 University Hospital, 410 West 10th Avenue.

PROFESSORS WARREN (Chairman), ALLEN, ATWELL, BEMAN, BROWNING, DELOR, DOAN (Emeritus), FANCHER, J. FORMAN (Emeritus), W. FORMAN, HEISEL, KEZDI, KNIES, J. MITCHELL, W. MITCHELL, MYERS, NELSON (Emeritus), PALMER, PRIOR, ROTHERMICH, RYAN, SASLAW, SCHIEVE, SCHOENE, SHILLITO, WALL, and WILSON; ASSOCIATE PROFESSORS AYRES, BOURONCLE, BRADLEY, CARR, DEMERIT, EVANS, FULTON, GREEN, HATCHER, HAYNIE, HUSTON, E. JOHNSON, KRUGER, MCCOY, MENGEL, MORRICE, OSBORNE (Emeritus), PHELPS, SILBERSTEIN, TAGUCHI, TALBOTT, and WEISSLER; ASSISTANT PROFESSORS BARTHOLOMEW, BOLTON, BOWERS, CARTER, CASSEL, CLODFELTER, CONN, DONNERBERG, ENGELMAN, GEORGE, GIFFORD, GOLDBERG, GOODMAN, GOULDER, GRAVES, GREENBERGER, GRUBBS, GUTHRIE, HARRIS, HATFIELD, HUMMEL, HUMPHREY, JACQUES, P. JOHNSON, KELLER, KIRK, LANEVE, LEFKEN, LEIGHTON, LEVINE, LITTLE, LONG, LOVE, MARTIN, MATRE, MCKITRICK, MERKLE, METZGER, MURPHY, OBETZ, PERKINS, PHILIPS, PINE, POLLOCK, PRITCHETT, READ, ROSENOW, ROSS, SCHOENFELD, SEYLER, SHARKEY, SHEPARD, SIMON, SMITH, SOTOS, STEVENSON, TIBER, TOMASHEFSKI, TRONSTEIN, VINCENT, WEINBERG, WEIDERHOLT, WIELAND, WILLIAMS, and WOOLEY.

**575 The Art and Science of Medicine P 0**

(675) W. 1 cl.

Prereq.: Med. 1st yr. standing

The development of modern methods of diagnosis and treatment, the consideration of the art as well as the science of medicine.

**601 The Comprehensive Evaluation of the Patient P 4**

A.

Prereq.: 2nd yr. standing.

601, 602, 603 offered in cooperation with Departments of Ob. Gyn., Ophthal., Otol., Phys. Med., Ped., Prev. Med., Psychiatry, Radiol., and Surg.

Integrated interdisciplinary experiences in clinical settings; emphasis on patient problems, pediatric or adult; bedside instruction, seminars, demonstrations, and lectures by faculty of all clinical departments.

**602 The Comprehensive Evaluation of the Patient P 3**

W.

Prereq.: 601.

Continuation of 601.

**603 The Comprehensive Evaluation of the Patient P 14**

Sp.

Prereq.: 602.

Continuation of 602.

**661 Principles of Medicine P 2**

Sp. 2 cl.

Prereq.: Dent. 3rd yr. standing.

A survey course in medicine to dental students considering the infectious, deficiency, and systemic diseases; representative diseases are selected for detailed consideration and demonstrations if material is available.

**714 Ward Clinics in Infectious Diseases P 6**

1 month, offered all months except June.

Prereq.: Med. 3rd or 4th yr. standing.

Clerkship and seminars on common and unusual infectious diseases; formal instruction between 8 a.m. and 6 p.m. but student is on call throughout 24 hours. Saslaw.

**715 Clinical Medicine P 24**

4 months, offered July, Nov., Mar.

Prereq.: Med. 3rd yr. standing.

Student will spend four months in medicine, one-third of the time in each of these areas: General Medical Wards, Out-Patient Department, and Subspecialty Ward Services, seeing general and special medical problems. Formal instruction is between 8 a.m. and 6 p.m., but student is on call throughout 24 hours. Subspecialties included are:

- .01 Allergy
- .02 Cardiology
- .03 Dermatology
- .04 Endocrinology
- .05 Gastroenterology
- .06 Hematology
- .07 Neurology
- .08 Pulmonary Diseases
- .09 Renal Diseases
- .10 Rheumatology

**716 Ward Clinics in Pulmonary Disease P 6**

1 month, offered all months except June.

Prereq.: Med. 3rd yr. standing.

Clerkship and seminars at Ohio Tuberculosis Hospital with emphasis on pulmonary medical problems. Formal instruction between 8 a.m. and 6 p.m., but student is on call throughout 24 hours.

**740 Ambulatory Clinics in Medicine P 6**

1 month, offered all months except June.

Prereq.: Med 4th yr. standing.

Repeatable to a maximum of 18 cr. hrs.

The diagnosis and treatment of ambulatory patients with general and special medical problems.

**751 Medical Specialties P 6**

1 month, offered all months except June.

Prereq.: 715 and permission of instructor.

Ward clerkship in the following subspecialties of medicine, with bedside, didactic and seminar instruction. Formal instruction is between 8 a.m. 6 p.m., but student is on call throughout 24 hours.

- .01 Allergy
- .02 Cardiology
- .03 Dermatology
- .04 Endocrinology
- .05 Gastroenterology
- .06 Genetics
- .07 Hematology
- .08 Neurology
- .09 Renal Diseases
- .10 Rheumatology
- .11 Advanced Clinical Clerkships
- .12 General Internal Medicine (Private)

**770 Basic Science Review P 3**

1 month, May.

Prereq.: Med. 4th yr. standing; concur.: Pharm-col. 770.

Didactic review of new basic science developments; practice in electrocardiographic and phonocardiographic interpretation; elements of office practice and community relations.

**793 Individual Studies in Medicine P 6, 12, 18 G 1-5**

All months. 1 or more mos., to be elected.

Prereq.: Med. 3rd or 4th yr. standing and permission of division chief.

Research on a minor problem under faculty supervision in the following specialties of medicine:

- .01 Allergy
- .02 Cardiology
- .03 Dermatology
- .04 Endocrinology
- .05 Gastroenterology
- .06 Genetics
- .07 Hematology
- .08 Infectious Diseases
- .09 Neurology
- .10 Pulmonary Diseases
- .11 Renal Diseases
- .12 Rheumatology

**798 Internship in Medicine P 18**

Su, A, W, Sp.

12 months, full time, beginning July 1.

Prereq.: Appointment as Intern, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through medical ward services and hospital emergency room; primary responsibility for patient care; attending and work rounds; staff conferences.

**799 Residency in Medicine P 18**

Su, A, W, Sp.

12 months, full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through medical subspecialty, clinical and out-patient services; consultative activities, supervisory and teaching responsibilities in patient-care team; rounds; conferences.

**850 Seminar in Medicine G 1-3**

(785) Su, A, W, Sp.

Prereq.: Permission of instructor.

Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts. Warren and Staff.

**999 Research in Medicine G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Metallurgical Engineering**

Office: 141A Metallurgical Building, 116 West 19th Avenue

PROFESSORS †FONTANA (Chairman), †BECK, †HIRTH, MUELLER (Emeritus), NOLD (Emeritus), †POWELL, †SPEISER, †SPRETNAK, †ST. PIERRE, and †WILLIAMS; VISITING PROFESSOR SCHUH-MANN; ASSOCIATE PROFESSORS †MOAZED and †RAPP; ASSISTANT PROFESSOR †STAEHLE.

**400 Elements of Materials Science U 4**

(611) W, Sp. 4 cl.

Metals and alloys, plastics, ceramics, and corrosion. Powell, Rapp.

**410 Foundry Technology U 4**

(501) A. 3 cl., 1 2-hr. lab.

Concur.: 440.

See footnote for Indust. E. 201 re.: Safety Glasses.

Survey of melting procedures, fundamentals of freezing metals, bases in metals, cast structures and properties, production of machine components by casting techniques. Williams.

**420 Principles of Metallurgical Processes III U 4**

(663) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 430.

Analytical solutions to the equations for steady and unsteady flows of heat and mass; the solution to complex metallurgical transport problems using digital computer methods. Staehle.

**430 Principles of Metallurgical Processes I U 3**

(661) A. 3 cl.

Prereq. or concur.: Chem. 531.



Metallurgical mass and enthalpy balances; application of thermochemical methods and data to metallurgical problems; analytical solution to problems associated with the combustion of fuels and heat utilization. *Rapp.*

#### 431 Principles of Metallurgical Processes II U 3

(662) W. 3 cl.

Prereq.: 430, concur. Chem. 532.

Application of the second law of thermodynamics and reaction rate theory to metallurgical processes. *St. Pierre.*

#### 440 Physical Metallurgy I U 3

(560) A. 3 cl.

Physical properties of pure metals and single phase alloys; solid solutions. *Moazed.*

#### 450 Physical Metallurgy II U 3

(630) W. 3 cl.

Prereq.: 440.

Diffusion, grain growth, cold-working and recrystallization in single-phase metals; nucleation of second phases. *Powell.*

#### 451 Physical Metallurgy III U 3

(631) Sp. 3 cl.

Prereq.: 450.

Metallurgical phase diagrams, including unary, binary and ternary phase diagrams; phase rule. *Moazed.*

#### 489 Industrial Experience U 5

(420) A. 5 cr. hrs. for each summer's work.

Repeatable to a maximum of 10 cr. hrs.

Register for course and submit report on experience during the Autumn Quarter following the summer in which industrial experience was obtained. Two summers or 20 weeks of approved work in metallurgical industries. *Williams.*

#### 490 X-Ray Metallography U 2

Sp. 1 4-hr. lab.

Prereq.: 450.

Lectures on the theory of x-ray diffraction by crystals; experiments demonstrating the application of x-ray diffraction to metallurgical problems. *Powell.*

#### 500 Physical Metallurgy of Steels U G 4

A. 4 cl.

Prereq.: 451.

Not for graduate credit to students majoring in Met. E.

Decomposition of austenite and the hardenability of steels; tempering of martensite. *Powell.*

#### 502 Advanced Structure of Materials U G 3

(776) W. 3 cl.

Prereq.: 400 or equiv.

Not open to students majoring in Met. E.

Means of obtaining and controlling microstructure. Relationship of structure to properties. Survey of alloy systems. Environmental limitations of materials. *Hirth.*

#### 520 Principles of Extractive Metallurgy I U G 4

(761) W. 3 cl., 1 3-hr. lab.

Prereq.: 431 and 530, or permission of instructor.

Not for graduate credit to students majoring in Met. E.

Graphical representation of phase equilibria, including important M-O-C and M-O-S systems; treatment of gas-solid reaction kinetics, including decomposition, combustion, reduction, roasting and retorting. *Rapp.*

#### 521 Principles of Extractive Metallurgy II U G 4

(762) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 520.

Not for graduate credit to students majoring in Met. E.

Refining of alloys; vapor pressure; precipitation from liquid alloys; gases in metals; segregation and zone melting; partitioning. *St. Pierre.*

#### 530 Metallurgical Thermodynamics U G 4

(712) A. 3 cl., 1 3-hr. lab.

Prereq.: 431.

Not for graduate credit to students majoring in Met. E.

Fundamental principles of thermodynamics; development of the important concepts and equations of thermodynamics; metallurgical solutions—activity behavior; heterogeneous equilibria and application to phase diagrams. *Rapp.*

#### 550 Physical Metallurgy IV U 3

(632) A. 3 cl.

Prereq.: 451.

Phase transformations in solids, including precipitation from solid solution, eutectoid decomposition, martensitic transformation, and order-disorder reactions. *Powell.*

#### 551 Physical Metallurgy V U G 3

(703) W. 3 cl.

Prereq.: 550.

Not for graduate credit to students majoring in Met. E.

Relationship of physical and mechanical properties to microstructure; quantitative metallography. *Moazed.*

#### 552 Physical Metallurgy VI U G 3

(704) Sp. 3 cl.

Prereq.: 551.

Not open for graduate credit to students majoring in Met. E.

Physical metallurgy of steels; austenite decomposition; hardenability; heat treatment; alloying effects. *Hirth.*

#### 589 Inspection Trip U 2

(645) Sp. Taken between W. and Sp. Qtrs.

One week trip to visit industrial plants and laboratories. Report required. Maximum expense, \$90.00. *Williams.*

#### 590 Metallography I U G 2

(671) A. 1 4-hr. lab.

Concur.: 451.

Not for graduate credit for students majoring in Met. E.

Principles and practice of metallography. *Powell.*

#### 591 Metallography II U G 2

(672) W. 1 4-hr. lab.

Prereq.: 590.

Not for graduate credit for students majoring in Met. E.

Continuation of 590. *Moazed.*

**592 Metallography III U G 2**(673) *Sp.* 1 4-hr. lab.*Prereq.*: 591.*Not for graduate credit for students majoring in Met. E.*Continuation of 591. *Moazed.***610 Foundry Molding Materials U G 3**(721) *A.* 3 cl.*Prereq.*: 410, *Mineral.* 414.A study of materials used in compounding of sand mixtures and the effect of thermal shock upon the properties of molded masses. *Williams.***611 Foundry Molding Methods, Gating, and Riser U G 3**(722) *W.* 3 cl.*Prereq.*: 410, 420.The manufacture of sand molds by various methods. Gating and risering—a study of fluid flow and solidification to produce sound castings. *Williams.***615 Shaping and Forming of Metals U G 3**(745) *W.* 3 cl.*Prereq.*: 660.Fundamental aspects of deformation of metals by forging, rolling, wire drawing, tube drawing, extrusion, piercing, and deep drawing. *Spretnak.***620 Process Metallurgy U G 3**(763) *W.* 3 cl.*Prereq.*: 521.Analysis and design of processes for extracting and refining of metals. *St. Pierre.***635 Corrosion U G 3**(730) *A, Sp.* 2 cl., 1 2-hr. lab.*Prereq.*: *Engr.* 4th yr. standing.*Fontana.***660 Mechanical Metallurgy U G 3**(735) *A.* 3 cl.*Prereq.*: 551 and *Engr. Mech.* 420.Behavior of metals under simple and combined stress systems. Elements of elastic theory, plastic deformation, dislocation theory, strength theories, and fracture. *Spretnak.***670 Engineering Metallurgy I U G 3**(759) *A.* 3 cl.*Prereq.*: 551.Basic properties of metals and alloys, coat structure, design factors, specifications, statistical methods, Selection of metals and alloys, service failures. *Spretnak.***671 Engineering Metallurgy II U G 3**(760) *W.* 3 cl.*Prereq.*: 670.Continuation of 670. *Spretnak, Staehle.***675 Materials of Nuclear Technology U G 3**(716) *A.* 3 cl.*Prereq.*: 400 or equiv.The physical metallurgy of reactor materials; the effects of reactor environment on the structure, the physical and mechanical properties of these materials. *Staehle.***693 Metallurgical Investigations U G 1-6**(710) *A, W, Sp.* 1 cl., 2 to 4 3-hr. lab.*Prereq.*: Permission of department.*Repeatable to a maximum of 9 cr. hrs.*

The class is divided into groups for investigation along the lines of their special interests as follows:

- a. The properties of metals and alloys.
- b. Production and refining of metals.
- c. Mineral and coal beneficiation.
- d. Fuels.
- e. Metallurgical equilibria.
- f. Corrosion engineering.
- g. Foundry.
- h. Powder metallurgy.

All investigations are under the close direction of instructors. Comprehensive report required.

**710 Casting Control U G 3**(724) *Sp.* 3 cl.*Prereq.*: 610 or 611.A study of the factors involved in the elimination of defective products. *Williams.***730 Thermodynamics of Alloys U G 3**(844) *A.* 3 cl.*Prereq.*: 530 or equiv.Thermodynamics of liquid and solid alloy systems; numerous problems. *St. Pierre.***735 Advanced Corrosion U G 3**(731) *W.* 3 cl.*Prereq.*: 635.Theories and mechanisms of corrosion. *Fontana, Staehle.***736 The Behavior of Materials at Elevated Temperatures U G 3***Sp.* 3 cl.*Prereq.*: 530 or permission of instructor.Treatment of the thermodynamic, kinetic, and morphological aspects of the reactions of pure metals and alloys with oxidizing environments at elevated temperatures; the mechanical properties of materials at elevated temperatures. *Rapp.***740 Theory and Properties of Metals U G 3**(770) *Sp.* 3 cl.*Prereq.*: 552, *Chem.* 533, and *Math.* 255, or permission of instructor.Dependence of physical properties on structure; regularities in the structure of alloy systems; stability of alloy systems; transport phenomena in metals and alloys; magnetic phenomena. *Speiser.***745 Advanced Physical Metallurgy I U G 3**(741) *A.* 3 cl.*Prereq.*: 552.Diffusion in metals. *Powell.***750 Advanced Physical Metallurgy II U G 3**(740) *W.* 3 cl.*Prereq.*: 552.Detailed discussion of nucleation theory, preparation of single crystals, metallic crystals and grains, interpretation of microstructure in terms of interfacial tensions, grain growth, alloying. *Moazed.*



**800 Theoretical Metallurgy G 3**

(850) A. 3 cl.

Prereq.: Met. E. graduate standing or permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Current topics in the field of specialization of the Visiting Battelle Professor of Metallurgy.

**801 Theoretical Metallurgy G 3**

(851) W. 3 cl.

Prereq.: 800.

Continuation of 800.

**802 Theoretical Metallurgy G 3**

(852) Sp. 3 cl.

Prereq.: 801.

Continuation of 801.

**820 Physical Chemistry of Process Metallurgy G 3**

(815) Sp. 3 cl.

Prereq.: 620 and 730.

Mechanisms of reactions in liquid alloys; applications of thermodynamics and kinetics to the analysis of metal refining. *St. Pierre.***831 Advanced Metallurgical Thermodynamics II G 3**

(845) W. 3 cl.

Prereq.: 730.

Continuation of 730. Thermodynamics of metallurgical systems. *Speiser.***832 Advanced Metallurgical Thermodynamics III G 3**

Sp. 3 cl.

Prereq.: 831.

Continuation of 831. Irreversible phenomena; metallurgical kinetics; application of rate theory to transport phenomena in metals and to metallurgical reactions. *Speiser.***835\* Point Defects in Crystalline Materials G 3**

(830) Sp. 3 cl.

Prereq.: 530 and 635 or equiv., or permission of instructor.

A thermodynamic and electrochemical treatment of the formation, concentrations, mobilities, and interactions of ionic and electronic point defects in ionic compounds at high temperatures. *Rapp.***841 Theory and Properties of Metals G 3**

(771) A. 3 cl.

Prereq.: 740.

Continuation of 740. *Speiser.***842 Theory and Properties of Metals G 3**

(772) W. 3 cl.

Prereq.: 841.

Continuation of 841. *Speiser.***845 Energetics and Kinetics of Surfaces G 3**

(790) Sp. 3 cl.

Prereq.: 530 or equiv.

Discussion of properties of interfaces and their role in rate processes. *Moazed.***851 Advanced Physical Metallurgy III G 3**

(742) Sp. 3 cl.

Prereq.: 750 and 745.

Classification of phase transformation, precipitation from solid solution, martensitic transformations, decomposition of austenite, order-disorder. *Spretnak.***852 Advanced Physical Metallurgy IV G 3**

(743) A. 3 cl.

Prereq.: 851.

Relation of properties to microstructure. *Moazed.***855 Structures of Metals and Alloys G 3**

(780) W. 3 cl.

Prereq.: 550 and 522, Math. 255, Chem. 533, or permission of instructor.

Application of X-ray diffraction and electron diffraction theory to the study of the structure of metals and alloys. Discussion of phase diagrams of alloys by X-ray methods. Determination of pole figures and orientation. *Powell.***860 Quantitative Dislocation Theory G 3**

(820) W. 3 cl.

Prereq.: Math. 255 or permission of instructor.

Mathematical treatment of dislocation theory and its application to flow and fracture phenomena in solids. *Hirth.***861 Advanced Mechanical Metallurgy G 3**

(835) Sp. 3 cl.

Prereq.: 860.

Detailed discussion of elasticity, plasticity, plastic deformation, dislocation theory of plastic flow, and fracture. Effect of state of stress on plastic flow. *Spretnak.***881 Graduate Seminar G 1**

(801) A, W, Sp.

Prereq.: Met. E. grad. standing.

Repeatable to a maximum of 6 cr. hrs.

Discussion of current thesis problems and outstanding current literature in metallurgical engineering. Round table discussion of selected metallurgical topics.

**884 Advanced Topics in Metallurgical Engineering G 2**

(901) A, W, Sp. 2 cl.

Prereq.: Permission of the instructor.

Repeatable to a maximum of 8 cr. hrs.

Pertinent topics to be announced.

**999 Research in Metallurgy Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Microbiology

Office: 610 Pharmacy & Bacteriology Building, 1958 Neil Avenue.

PROFESSORS †RHEINS (Acting Chairman), †BIRKELAND, †BOHL, †DODD, †MACPHERSON, †RANDLES, †ROEBUCK, †SASLAW, and †WEISER; ASSOCIATE PROFESSORS †ROSEN, †SUIE, and †WILSON; ASSISTANT PROFESSORS †BIGLEY, †CHORPENNING, †DUGAN, †FREA, †KOLODZIEJ, †KREIER, †R. H. MILLER, †PFISTER, and †WOLFF.

For related courses see Biology.

### 209 Microbiology for Dental Hygienists U 4

(409) W. 2 cl., 2 1-hr. lab.

Prereq.: Admission to Dent. Hyg. program.

A survey of techniques and principles of bacteriology with reference to sterilization, asepsis, and disease prevention. Mote and assistants.

### 210 Microbiology for Nurses U 5

(510) W. 3 cl., 2 3-hr. lab.

Prereq.: Nurs. 1st yr. standing.

A survey of the principles and techniques of microbiology and immunology with special emphasis on their applications to nursing. Wolff.

### 211 General Microbiology U 5

(511) A. 3 cl., 6 lab. hrs.

Prereq.: Superior performance in biol., chem., and math. in high school and permission of instructor.

A special course for first year college students. Morphologic and physiologic characteristics of microorganisms. Kinsley, Frea, and Pfister.

### 212 General Microbiology U 5

(512) W. 3 cl., 6 lab. hrs.

Prereq.: Superior performance in biol., chem., and math. in high school and permission of instructor.

A special course for first year college students. Genetics and ecology of microorganisms. Frea, Dugan, and Randles.

### 509 Microbiology in Relation to Man U 5

A, W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 10 hrs. of natural science.

Not open to students with credit for 600 level courses in Microbiol.

Not to be taken concur. with Microbiol. 607.

Not for students who intend to take other courses in Microbiol.

Designed to give the student an understanding of microorganisms which have a bearing on the physical and economic well-being of man. Birkeland, Weiser, Mote and assistants.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 AND 700

Unless otherwise indicated the prerequisites for 600 and 700 courses are fifteen hours of chemistry and ten hours of biological science.

### 605 Basic Microbiology for Science Teachers U G 5

W. 3 cl., 3 2-hr. labs.

Prereq.: Biological science majors in the College of Education, or students in the Academic Year Institute, or graduate teachers of biological sciences.

Biology and physiology of bacteria. Their applications to foods, soil, fertility, sanitation, and disease. Laboratory exercises include those designed for limited equipment in high schools. Dugan.

### 607 General Microbiology U G 5

A, Sp. 3 cl., 2 3-hr. lab.

May not be taken concur. with 509.

Not open to students with credit for (550).

The characteristics of microorganisms and their applications in everyday processes; experience in isolating and identifying bacteria. Randles, Frea, and Pfister.

### 609 General Microbiology U G 5

(633) A, W.

Continuation of 607. Dugan, Frea and Randles.

### 612 Veterinary Microbiology P G 5

(602) W. 3 cl., 3 2-hr. lab.

Prereq.: Vet. Med. 1st yr. standing, 607.

A study of the mechanisms of infection and resistance to disease, followed by discussion and laboratory exercises on characteristics of bacteria pathogenic for animals. Kreier and assistants.

### 613 Veterinary Microbiology P G 5

(603) Sp. 3 cl., 3 2-hr. lab.

Prereq.: Vet. Med. 1st yr. standing, 612.

Continuation of Microbiol. 612. Lectures and laboratory exercises deal with the characteristics of bacteria, fungi, rickettsiae, and viruses that are pathogenic for animals. Kreier and assistants.

### 622 Principles of Infection and Resistance U G 5

W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 607 or equiv.

A study of host-parasite relationships, with emphasis on pathogenicity and immunity. Dodd, Chorpennig.

### 623† Serology U G 5

A, W. 3 cl., 3 2-hr. lab.

Prereq.: 622.

Theories principles and techniques of the immunological phenomena such as acquired immunity, hypersensitivity, blood groups, etc., and the fundamental properties of antigens, antibodies, and their reactions. Chorpennig.

#### Medical Microbiology

(See Med. Micro. 624 and 625.)

### 625 Pathogenesis and Immunology of Infectious Diseases U G 5

A, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 622.

A consideration of the microbiological and immunological aspects of representative types of infectious diseases. Bigley and Rheins.

### 630 Dairy Microbiology U G 5

(610) W. 3 cl., 2 3-hr. labs.

Prereq.: 609.

Microorganisms involved in desirable and undesirable fermentations and methods of control. Emphasis is placed upon milk-borne diseases in relation to the public health. Kinsley and Weiser.



**636 Food Microbiology U G 5***Sp.* 3 cl., 3 2-hr. labs.*Prereq.*: 609.

The role of microorganisms in normal and abnormal fermentation in foods and related sanitation and public health problems are discussed. *Weiser, Kinsley.*

**639†\* Aquatic Microbiology U G 4***Su.* (1st term), 3 all-day cl. per week.

*Prereq.*: 20 cr. hrs. of biol. sci., including Microbiol. 607 or equiv., and Chem. 231 or equiv. Given only at the Franz Theodore Stone Laboratory.

The nature and activities of bacteria in the aquatic environment, with emphasis on the different physiological types found in the Lake Erie region. *Randles.*

**652 General and Pathogenic Microbiology for Dental Students P G 6***W.* 4 cl., 3 2-hr. lab.*Prereq.*: Dent. 2nd yr. standing.

A survey of the techniques and principles of microbiology and immunology with special reference to the microbiology of the oral cavity. *Dodd, Rosen and assistants.*

**Soil Microbiology***(See Agron. 660.)***693 Individual Studies in Microbiology U G 1-5***(701) A, W, Sp.*

*Prereq.*: Microbiol. 4th yr. major or grad. standing and permission of instructor.

Repeatable.

Outlined by instructor to meet individual student's needs.

**710† History of Microbiology and Allied Fields U G 3***Sp.* (Lectures, confs., and library work.)

*Prereq.*: Microbiol. advanced graduate standing or permission of instructor.

The historical development of bacteriology, immunology, and allied fields. *Hudson.*

**723 Immunology and Immunochemistry U G 5***Su.* 3 cl., 2 3-hr. labs.*Prereq.*: 625 and permission of instructor.

A thorough treatment of the basic phenomena involving antigens, antibodies, their natures and interactions. *Dodd.*

**725 Bacterial Pathogens U G 5***A.* 3 cl., 2 2-hr. labs.*Prereq.*: 625.

Emphasis on the nature of representative bacterial disease agents. *Rheins and Bigley.*

**729 Pathogenic Protozoology U G 3***(620) W.* 3 cl.*Prereq.*: 625.

Various pathogenic protozoa of animals; host-parasite relationships; pathogenesis of protozoa diseases; structural characteristics of parasites. *Kreier.*

**734 Water Microbiology U G 5***(634) Sp.* 2 cl., 2 2-hr. labs.*Prereq.*: 609.

A basic study of the relationships and influence of aquatic environments on microorganisms and the effect of microbial metabolic processes on the quality of water.

**736† Advanced Food Microbiology U G 5***Sp.* 2 cl., 2 3-hr. labs.*Prereq.*: 636, *concur.* 622, or 625.

Advanced studies in the metabolism of microorganisms involved in preservation and food processing using radioisotopes, chromatography, and electrophoresis. *Kinsley.*

**749 Basic Virology U G 5***(649) W.* 3 cl., 2 3-hr. labs.*Prereq.*: 625 and Bio. Chem. or Physiol. Chem.

The basic physical, chemical and biological properties of animal and bacterial viruses including intracellular replication and subcellular responses to virus infection.

**760 Physiology of Bacteria U G 5***(635) W.* 3 cl., 2 3-hr. labs.*Prereq.*: 609.

Nutritional requirements of bacteria, mechanisms of anaerobic dissimilation of carbon compounds, and industrial fermentation. *Randles, Dugan and Frea.*

**761 Physiology of Bacteria U G 5***(638) Sp.* 3 cl., 2 3-hr. labs.*Prereq.*: 760.

Bacterial enzymes, mechanisms and energy relationships in respiration, nitrogen metabolism, and bacterial syntheses. *Randles, Dugan, and Frea.*

**765† Applied Microbiology U G 5***A.* 3 cl., 2 3-hr. labs.*Prereq.*: 761 and permission of instructor.

A study of the metabolic activities of microorganisms exploited to produce useful chemical reactions or commercial products.

**770 Microbial Cytology U G 5***Sp.* 3 cl., 2 3-hr. labs.*Prereq.*: 609 and permission of instructor.

A thorough study of morphology, fine structure and composition of microorganisms and the relation of these to cell function. *Pfister.*

**780 Microbial Genetics U G 5***Sp.* 3 cl., 2 3-hr. labs.*Prereq.*: 609 and permission of instructor.

A thorough study of microbial genetics with emphasis on bacteria and viruses.

**781 Special Groups of Microorganisms U G 5***Sp.* 3 cl., 2 3-hr. labs.*Prereq.*: 609 and permission of instructor.

A study of the morphology, physiology, and ecology of "non-typical" bacteria, actinomycetes, myxobacteriales, spirochaetes, filamentous S bacteria and others.

**820 Advanced Virology G 5***(720) Sp.* 2 cl., 2 3-hr. labs.*Prereq.*: 749.

Laboratory study of viruses and some of the virus diseases of animals and man; methods of isolation, propagation, identification, diagnosis, and control are considered. *Wolff and assistant.*

- 822 Advanced Immunology G 3**  
 (722) Sp.  
*Prereq.: 723.*

Advanced studies of immunological phenomena, with emphasis on the physical and chemical aspects of antigens and antibodies. *Dodd.*

- 824 Isoantigens and Antibodies G 5**  
 Sp. 3 cl., 2 2-hr. labs.  
*Prereq.: 723.*

Studies of erythrocyte antigens of man and animals, their serological reactions, genetics, chemical structure, clinical implications, and use in ethnological, genetic and medico-legal studies.

- 860 Advanced Topics in Bacterial Physiology G 5**  
 (735) A. 3 cl., 2 3-hr. labs.  
*Prereq.: 761.*

Laboratory study of bacterial physiology by a variety of techniques. *Dugan, Frea and Randles.*

- 880 Seminar in Microbiology G 3**  
 (807) A, W, Sp.  
*Repeatable. Permission of instructor only.*  
*Staff.*

- 896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**  
 Sp.  
*(See under Interdepartmental Seminars.)*

- 897 Interdepartmental Seminar in Natural Resources G 1**  
 A, W, Sp.  
*(See under Interdepartmental Seminars.)*

- 898 Interdepartmental Seminar in Nutrition and Food Technology G 1**  
 Sp.  
*(See under Interdepartmental Seminars.)*

- 999 Research in Microbiology G Arr.**  
 (950) A, W, Sp.  
 Research for thesis or dissertation purposes only.

## Military Science

*Office: 204 Military Science Bldg., 2121 Tuttle Park Place.  
 Army Reserve Officers Training Corps  
 COLONEL VON ROHR and STAFF.*

### BASIC MILITARY SCIENCE

- 101 American Military History U 2**  
 (401) A, W. 1 2-hr. cl., 1 drill hr.  
 An introduction to the Army and the ROTC. American military history from 1607 through 1865. Military drill.

- 102 American Military History U 2**  
 (402) W, Sp. 1 2-hr. cl., 1 drill hr.  
*Prereq.: 101 or permission of department head.*  
 American military history from 1865 to the present. Military drill.

- 103 Individual Weapons and Marksmanship U 2**  
 (403) Su, A, W, Sp. 1 2-hr. cl., 1 drill hr.  
 Fundamentals of small arms operation. Small-bore rifle marksmanship. Military drill.

- 201 Map and Aerial Photograph Reading U 2**  
 (501) A. 2 1-hr. cl., 1 drill hr.  
*Prereq.: 101, 102, 103 or equiv.*  
 Application of basic principles of map reading, emphasizing terrain, evaluation, including map symbols, military grid system, and elementary aerial photograph reading. Military drill and command.

- 202 U.S. Army and National Security U 2**  
 (502) W. 2 1-hr. cl., 1 drill hr.  
*Prereq.: 201 or permission of department head.*  
 Roll of the U.S. Army in national security. Military drill and command.

- 203 Introduction to Operations and Basic Tactics U 2**  
 (503) Sp. 2 1-hr. cl., 1 drill hr.  
*Prereq.: 202 or permission of department head.*  
 Mission, organization, and composition of the infantry rifle squad; combat formations, patrolling; field fortifications and camouflage; principles of offensive and defensive combat. Military drill and command.

### ADVANCED MILITARY SCIENCE

- 301 Military Leadership, Communication, Counterinsurgency and Combat Branches of the Army U 3**  
 (601) A. 2 2-hr. cl., 1 hr. leadership lab.  
*Prereq.: 101 through 203 or equiv.*  
 Study of psychological and sociological factors affecting human behavior; introduction to communication systems and counter insurgency; familiarization with the combat branches of the Army; leadership laboratory.

- 302 Small Unit Tactics U 3**  
 (602) W. 2 2-hr. cl., 1 hr. leadership lab.  
*Prereq.: 301 or permission of Professor of Military Science.*  
 Study of small unit organization and tactics to include estimates and orders during attack, defense, and retrograde operations; leadership laboratory.

- 303 Branches of the Army, Military Teaching Principles, and Pre-Summer Camp Orientation U 3**  
 (603) Su, Sp. 2 2-hr. cl., 1 hr. leadership lab.  
*Prereq.: 302 or permission of Professor of Military Science.*

Familiarization with the Service Branches of the Army; study of the techniques fundamental to military instruction; familiarization with policies, procedures and training at summer camp; leadership laboratory.



**401 Military Operations U 3**

(701) A. 2 2-hr. cl., 1 drill hr.

Prereq.: 303, or permission of the Professor of Military Science.

The concept of Army combat and combat support organizations; study of organization and operations to include managerial aspects, command, and staff; leadership laboratory.

**402 Logistics and Administration U 3**

(702) W. 2 2-hr. cl., 1 drill hr.

Prereq.: 401 or permission of Professor of Military Science.

Study of logistics and training management and Army administration; leadership laboratory.

**403 Military Justice, the United States in World Affairs, Map Reading, and Service Orientation**

(703) Sp. 2 2-hr. cl., 1 drill hr.

Prereq.: 402 or permission of Professor of Military Science.

Study of Military Justice, review of map reading, the role of the United States in world affairs considering world economic, political, geographic, and resource factors; service orientation; leadership laboratory.

**Mineralogy**

Office: 291 Watts Hall, 104 West 19th Avenue.

PROFESSORS †FOSTER (Chairman), †EHLERS, †McCONNELL, †McLACHLAN, and †WENDEN; ASSOCIATE PROFESSOR †TETTENHORST; and INSTRUCTOR.

**411 Crystallography and Descriptive Mineralogy U 5**

(511) A. 3 cl., 2 2-hr. lab.

Prereq.: Chem. 122 or 112.

Not open to students with credit for 414.

Principles of crystallography, using models, crystals, and cleavage fragments. Physical and chemical properties, origin, association, occurrence, and sight identification of about 160 of the most important minerals. Emphasis on crystallochemical principles. Wenden.

**412 Crystallography and Descriptive Mineralogy U 5**

(512) W. 3 cl., 2 2-hr. lab.

Prereq.: 411.

Continuation of 411.

**414 Principles of Mineralogy U 5**

(506) A, W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: Chem. 122 or 112, Math. 150 or 117.

Not open to students with credit for 411 or 412.

An introductory course, emphasizing principles and illustrating the internal structure of solids and relationship of structure and chemical composition to properties, applications, and external features. Ehlers. Tettenhorst.

**605 Thermochemical Mineralogy U G 5**

A. 5 cr. hrs.

Prereq.: Chem. 533 or equiv., or permission of instructor.

Thermal properties of minerals. Application of high temperature equilibrium to problems of petrology and technology, using phase diagrams. Foster.

**621 Microscopic Mineralogy U G 5**

A, W. 2 cl., 3 2-hr. lab.

Prereq.: 414 or 412, and Physics 112 or equiv.

A, Geol. graduates; W, Cer. E. majors.

Not open to students with credit for (625).

Theory and use of polarizing microscope. Determination of optical constants and identity of minerals. Ehlers.

A. Emphasis on mineral powders.

W. Emphasis on powders and thin-sections of minerals and synthetic products.

**624 Microscopy of Opaque Minerals U G 3**

(611) Sp. 3 2-hr. lab.

Prereq.: 414 or 412, 621.

Application of the petrographic microscope to the study of opaque minerals and ores, their identification, textures, and paragenesis. Polished section preparation, etch tests, and micro-chemical tests. Wenden.

**645 Advanced Crystallography U G 5**

(601) A. 3 cl., 2 2-hr. lab.

Prereq.: 414, 411, or equiv.

Lattices, point groups, and space groups. Morphology, structure, and habit in crystals. Twinning. Two-circle goniometer. Measurement, projection, and drawing of crystals. Investigations with precision X-ray camera. Wenden.

**650 X-ray Powder Diffraction U G 5**

W. 3 cl., 2 3-hr. lab.

Prereq.: 414 and Math. 153.

Emphasis on diffractometry; evaluation of instrumental, geometrical and other factors affecting intensity and position of diffraction maxima; qualitative and quantitative analysis, particle-size and other applications. Tettenhorst.

**654 X-Ray Crystallography U G 5**

(754) Sp. 3 cl., 2 3-hr. labs.

Prereq.: 414, 411, or equiv.

Not open to students with credit for Chem. (854).

Principles of X-ray crystal analysis. Phase identification by powder film and diffractometer methods. X-ray fluorescent analysis. Particle size determination. Unit cell and space group by rotation and Weissenberg methods. Wenden.

**665 Crystallochemical Mineralogy U G 3**

(755) W. 3 cl.

Prereq.: 414, 412, or permission of instructor.

Application of crystal chemical principles to study of major structure types, to properties, stability and occurrence of minerals, and to problems of polymorphism, solid solution and crystal growth. Wenden.

**706 Advanced Thermochemical Mineralogy U G 3**

W. 3 cl.

Prereq.: 605.

Derivation and interpretation of phase diagrams of ternary and quaternary systems of importance in petrology and technology. Foster.

**722 Microscopic Petrography U G 4**

W. 2 cl., 2 2-hr. lab.

Prereq.: 621.

Petrogenesis of common rock-forming systems. Microscopic thin-section investigations of igneous, metamorphic, and sedimentary rocks, correlating texture, mineral composition, alteration, and geological agencies. *Ehlers and Schultz.*

**730 Clay Mineralogy U G 3**

Sp. 3 cl., conf.

Prereq.: 414 and 654, or permission of instructor.

Relationship of structure and chemical composition of clay minerals to properties, origin, occurrence, and applications. Evaluation of X-ray, differential thermal, infrared, and electron microscope data. *Tettenhorst.*

**784 Mineralogical Investigations U G 3-5**

(701) A, W, Sp. 6-10 hr. lab. and conf.

Prereq.: Satisfactory courses in field of problem, and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Special problems in petrological, thermochemical, crystallochemical, X-ray or clay mineralogy, or other advanced non-thesis research.

**807 Hydrothermal Mineralogy G 3**

Sp. 3 cl.

Prereq.: 722 and Chem. 531, 532, and 533 or equiv.

The effect of water under various pressure and temperature conditions related to magmatic and experimental conditions; mineral synthesis, stability, and growth of single crystals in hydrothermal environments discussed and demonstrated on standard equipment. *Ehlers.*

**808 High Pressure Mineralogy G 3**

Sp. 3 cl.

Prereq.: 722 and Chem. 531, 532, and 533 or equiv.

The general approach of high pressure techniques to synthesis and stability of inorganic mineral compounds in both geological and experimental environments; stability of minerals within the earth's crust and mantle with technological applications. *Ehlers.*

**823 Advanced Optical Mineralogy G 3**

(725) A. 3 2-hr. lab.

Prereq.: 722 or equiv.

Theory and determination of optical constants and directional features using Universal Stage. Includes determination of optic angles, feldspar compositions, double variation technique and petrofabric analysis. *Ehlers.*

**831 Advanced Clay Mineralogy G 3**

A. 3 cl., lec., labs, and confs.

Prereq.: 730.

Advanced topics including one dimensional structure plots, two dimensional diffraction effects, and relation of structure and composition; individual problems; evaluation of current investigations. *Tettenhorst.*

**858 Advanced Mineral Structures G 3**

Sp. 3 cl.

Prereq.: 665, Chem. 675.

Review of methods of crystal structure determination by optical, physical and X-ray methods, selected examples from each mineral class; computations illustrated with laboratory data. *McLachlan.*

**875 Crystal Growth G 3**

A. 3 cl. plus confs.

Prereq.: 706, Chem. 533 and 675, Math 255.

A survey of the known methods of growing crystals coupled with the theory of the kinetic principles involved in growth, nucleation and habits of growth. *McLachlan.*

**876 Crystal Physics G 3**

W. 3 cl.

Prereq.: Chem. 675, Physics 521, Math. 571.

An introduction to the use of tensors in the description of the gross physical properties of crystals. *McLachlan.*

**881 Seminar in Mineralogy G 1-3**

(801) A, W, Sp. 2-6 hr. conf.

Repeatable to a maximum of 12 cr. hrs.

Conference and reports on the developments in mineralogical research and their application to the problems of mineralogy and mineral technology.

**999 Research in Mineralogy and Petrography G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**Music**

Office: 105 Hughes Hall, 1899 North College Road.

PROFESSORS †RIGSBY (Director), †BARNES, †EPERSON, †EVANS, †GILLILAND, †HADDAD, †HARDESTY, †HELD, †HOPPIN, †KUEHEFUHS, †LIVINGSTON, †MAIN, †McBRIDE, †McGINNIS, †PHELPS, †SCHNEIDER, and †STAIGER; ASSOCIATE PROFESSORS †BENNER, †CADY, JONES, †LUCE, †McCLURE, †MIXTER, †MOONEY, †POLAND, †RAMSEY, RAST, †SPOHN, †TETLEY-KARDOS, †TITUS, VEDDER, †WALKER, and †WILSON; ASSISTANT PROFESSORS BARNES, BONNEY, †COOPER, DAVIS, HUFF, †MUSCHICK, SEXTON, SIMMONS, †SUDDENDORF, WARNER, WHALLON, and WILSON; INSTRUCTORS †BAKER, GREEN, LEVEY, MANLEY, and †MOORE.

Preceding the class sessions of Music 221 and Music 201, placement tests will be given to determine the ability of students in these subjects. (See School of Music for details of time and place.) Students with less than the expected ability will be requested to change from the original registration to Music 001.

**001 Applied Music U 0**

(400) A, W, Sp.

The fundamentals and techniques of applied music. This course is designed for, and open only to, students who do not qualify in the placement test, or who, in the first quarter, do not maintain satisfactory standards of work in Music 201.

- .01 Piano
- .02 Voice
- .03 Strings
- .04 Woodwinds
- .05 Brass
- .07 Percussion



**095 Orientation I U 0**

(400K) *A. 2 cl., section meetings or concert attendance each week for all freshmen.*

Lectures, discussions, conferences, and field trips, which will include: (a) Orientation of the student to University resources and to requirements of the School of Music; (b) Introduction to fields of music; (c) Assessment and advising of the student; (d) Recital and Concert attendance.

**096 Orientation II U 0**

(400L) *W. 2 cl., section meetings or concert attendance each week for all freshmen.*

*Prereq.: 095.*

Continuation of 095.

**097 Orientation III U 0**

(400M) *Sp. 2 cl., section meetings or concert attendance each week for all freshmen.*

*Prereq.: 096.*

Continuation of 096.

**098 Concert Attendance I U 0**

(400N) *A, W, Sp. Attendance at 27 concerts or recitals for 3 qtrs. on a cumulative basis for all sophomores.*

*Prereq.: 097.*

Continuation of 097. A record of recital and concert attendance will be kept in the School of Music Office.

**099 Concert Attendance II U 0**

(400P) *A, W, Sp. Attendance at 27 concerts or recitals for 3 qtrs. on a cumulative basis for all sophomores.*

*Prereq.: 098.*

Continuation of 098.

**100 Concert Attendance III U 1**

(400R) *A, W, Sp. Attendance at 27 concerts or recitals for 3 qtrs. on a cumulative basis for all sophomores.*

*Prereq.: 099.*

Continuation of 099.

**141 Introduction to Music U 3**

(404) *A, W, Sp. 3 cl.*

*Prereq.: Not for credit to Mus. majors. A musical background is not required.*

A consideration of the materials of music and important styles, forms, and composers from the Baroque to the present.

**142 Introduction to the History of Western Music I U 3**

(451) *A, W, Sp. 3 cl.*

*Prereq.: 141.*

*Not for credit to Mus. majors.*

An historical survey of music from classical antiquity to about 1750.

**143 Introduction to the History of Western Music II U 3**

(452) *A, W, Sp. 3 cl.*

*Prereq.: 141.*

*Not for credit to Mus. majors.*

An historical survey of music from 1750 to the present.

**CAMPUS MUSIC ORGANIZATIONS**

University Campus Music Organizations are open to all students in the University who may receive full credit according to regulations of the college in which they are enrolled.

**180 University Chorus U 1**

(A1) *A, W, Sp.*

*Prereq.: Admission by audition only.*

*Three or more hrs. of rehearsal each week.*

Oratorio and large choral works are studied and performed.

**181 Symphonic Choir U 1**

(A3) *A, W, Sp.*

*Prereq.: Admission by audition only.*

*Application should be made to the director. Three or more hrs. of rehearsal each week.*

Symphonic Choir is a concert organization singing a variety of literature.

**182 Women's Glee Club U 1**

(A4) *A, W, Sp.*

*Prereq.: Membership in this concert group is open to all women students in the University by audition. Auditions are held at stated periods, and vacancies in the club are filled with the best available voices.*

*Three or more hrs. of rehearsal each week.*

Study and performance of choral literature for women's voices. *Simmons.*

**183 Men's Glee Club U 1**

(A5) *A, W, Sp.*

*Prereq.: Membership in this concert group is open to all men students in the University by audition only. Auditions are held at stated periods, and vacancies in the club are filled with the best available voices.*

*Three or more hrs. of rehearsal each week.*

Study and performance of choral literature for men's voices. *Staiger.*

**184 University Symphony Orchestra U 1**

(B1) *A, W, Sp.*

*Prereq.: Membership is open to all University students and personnel and to symphony players from in and about Columbus. Admission by audition and permission of the director.*

*Three or more hrs. of rehearsal each week.*

The University Symphony Orchestra is a 75-piece orchestra of full instrumentation devoted to the preparation of standard and modern literature; the group gives at least three concerts each year. *Hardesty.*

**185† University Little Orchestra U 1**

(B3) *A, W, Sp.*

*Prereq.: Admission by audition.*

*Three or more hrs. of rehearsal each week.*

A selected group giving public and broadcast performances; professional orchestral techniques are emphasized.

**186 University Football Marching Band U 1**

(C1) *A.*

*Prereq.: Admission by audition and permission of the director. Open to men students.*

*Three or more hrs. of rehearsal each week.*

The University Marching Band is a selected group of 120 brass and percussion players which performs at football games and rallies during Autumn Quarter. *Spohn.*

**187 ROTC Band (Air-Army) U 1**  
(C2) W, Sp.

*Prereq.: Admission by audition and permission of the director. Open to men students.*

*Three or more hrs. of rehearsal each week.*

Spohn.

**188 The University Concert Band U 1**  
(D1) A, W, Sp.

*Prereq.: Admission by audition and permission of the director.*

*Three or more hrs. of rehearsal each week.*

A selected group of limited membership devoted to the preparation and performance of the best band literature; gives public concerts and performs for University functions. McGinnis.

**189 The University Buckeye Band U 1**  
(D2) A, W, Sp.

*Prereq.: Admission by audition and permission of the director.*

*Three or more hrs. of rehearsal each week.*

Provides concert band participation for students unable for some reason to play in the University Concert Band; performs for University functions and gives public concerts. Evans, Baker.

**190 Opera Chorus U 1**  
(F1) A, W, Sp. 2 lab. hrs.

*Prereq.: Admission by audition and permission of instructor.*

*Not open to juniors and seniors in the opera program.*

*Two or more hrs. of rehearsal each week.*

**191 Vocal Ensembles U 1**  
(F2) A, W, Sp.

*Prereq.: Admission by audition and permission of instructor.*

*Two or more hrs. of rehearsal each week.*

**192 String Ensembles U 1**  
(F4) A, W, Sp.

*Prereq.: Admission by audition and permission of instructor.*

*Two or more hrs. of rehearsal each week.*

Epperson.

**193 Woodwind Ensembles U 1**  
(F5) A, W, Sp.

*Prereq.: Admission by audition and permission of instructor.*

*Two or more hrs. of rehearsal each week.*

Titus.

**194 Brass Ensembles U 1**  
(F6) A, W, Sp.

*Prereq.: Admission by audition and permission of instructor.*

*Two or more hrs. of rehearsal each week.*

Suddendorf.

**199 Miscellaneous Ensembles U 1**  
(F7) A, W, Sp.

*Prereq.: Admission by audition and permission of instructor.*

*Two or more hrs. of rehearsal each week.*

**201 Applied Music U 1-2**

(408) *Prereq.: Passing of Placement Test or 001. Concur.: 095, 096, 097. Required of students in all Music Curricula to a minimum of 6 qtr. hrs.*

Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature. A brief survey of the history of the instrument and its literature will be made.

Instruction is given in individual lessons for two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th and 10th week of each quarter. Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.

**.01 Piano**

A, W, Sp.

Haddad, Jones, Mooney, Whallon, Tetley-Kardos, and Platt.

**.02 Voice**

A, W, Sp.

Güliland, Staiger, Muschick, Cooper.

**.03 Strings**

A, W, Sp.

Hardeaty, McClure, Epperson, Moore, and Culver.

**.04 Woodwinds**

A, W, Sp.

McGinnis, Titus, Green, Wilson, and Baker.

**.05 Brass**

A, W, Sp.

Evans, Suddendorf, Battenberg, Droste, and Le Blanc.

**.06 Organ**

A, W, Sp.

Held, Wilson, and Riggsby.

**.07 Percussion**

A, W, Sp.

Spohn.

**.08 Harpsichord**

A, W, Sp.

**.09 Harp**

A, W, Sp.

**221 Music Theory I U 3**

(401) A. 6 lab. hrs.

*Prereq.: Passing of Placement Tests.*

The elements of music. Development of aural and notational skills.

**222 Music Theory II U 3**

(402) W. 6 lab. hrs.

*Prereq.: 221.*

Interval studies, rhythmic drill, sight-singing, dictation, keyboard practice, detailed study of primary harmonies and the dominant seventh chord.

**223 Music Theory III U 3**

(403) Sp. 6 lab. hrs.

*Prereq.: 222.*

Complex interval studies, rhythmic drill, sight-singing, dictation, keyboard practice, non-chordal tones, the introduction of secondary triads.



- 241 Music History I** U 3  
(551) A. 3 cl., 2 lab. hrs.  
Prereq.: 223.

The development of music from the earliest times through the sixteenth century.

- 242 Music History II** U 3  
(552) W. 3 cl., 2 lab. hrs.  
Prereq.: 241.

The development of music in the seventeenth and eighteenth centuries.

- 243 Music History III** U 3  
(553) Sp. 3 cl., 2 lab. hrs.  
Prereq.: 242.

The development of music in the nineteenth and twentieth centuries.

- 261 Applied Music Methods and Materials I** U 1-2  
(511)

- .01 Piano  
A, W. 4 cl.
- .02 Voice  
A, W, Sp. 4 cl.
- .03 Strings  
A. 4 cl.
- .04 Woodwinds  
A. 4 cl.
- .05 Brass  
W. 4 cl.
- .07 Percussion  
W, Sp. 4 cl.

- 262 Applied Music Methods and Materials II** U 2  
(512) Prereq.: 261 or equiv.

- .01 Piano  
W, Sp. 4 cl.
- .02 Voice  
W, Sp. 4 cl.
- .03 Strings  
W. 4 cl.
- .04 Woodwinds  
Sp. 4 cl.
- .05 Brass  
Sp. 4 cl.

- 263 Applied Music Methods and Materials III** U 2  
Prereq.: 262 or equiv.

- .01 Piano  
Sp. 4 cl.
- .02 Voice  
Sp. 4 cl.

- 264 Applied Music Methods and Materials IV** U 2  
Prereq.: 263 or equiv.

- .01 Piano  
A. 4 cl.
- .02 Voice  
A. 4 cl.

- 265 Music for Group Recreation** U 2  
(514) Sp. 3 cl.

Preparation and participation in folk singing and dancing. Experience in group leadership designed for recreation and camp leaders, social workers, teachers of music and classroom teachers. *Sexton*.

- 270 Basic Experiences in Music: Fundamentals** U 3

(547) A, W, Sp. 5 cl.

Ear-training, music reading, creative writing, voice production, and some instrumental experience as applied to the music program in the elementary school. *Sexton*.

- 271 Basic Experiences in Music: Literature and Listening** U 2

(546) A, W, Sp. 4 cl.

The elements involved in active, intelligent listening, understanding, and appreciation of representative works of music as applied to the music program in the elementary school. *Sexton*.

- 312 Opera Performance** U 2

(515) A, W, Sp. 4 lab. hrs.

Prereq.: Junior or senior standing and permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Instruction and experience in preparation for opera performance, including study of operatic literature and coaching of operatic roles.

- 370 Music for Elementary Teachers** U 3  
(548) A, W, Sp. 5 cl.

Prereq.: 270, 271, and professional standing.

Music literature and teaching aids for children, including singing, rhythmic, creative, and listening experiences, and their presentation. *Sexton, Bonney*.

- 401 Applied Music** U 1, 2, or 4  
(508) Prereq.: 201.

Concur.: 098, 099, 100.

Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.

Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th and 10th week of each quarter. Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.

- .01 Piano  
A, W, Sp.
- .02 Voice  
A, W, Sp.
- .03 Strings  
A, W, Sp.

- .04 Woodwinds**  
A, W, Sp.
- .05 Brass**  
A, W, Sp.
- .06 Organ**  
A, W, Sp.
- .07 Percussion**  
A, W, Sp.
- .08 Harpsichord**  
A, W, Sp.
- .09 Harp**  
A, W, Sp.
- 421 Harmony I** U 3  
(527) A. 3 cl.  
Prereq.: 223.  
Seventh chords, common-chord modulation, borrowed tones and borrowed chords.
- 422 Harmony II** U 3  
(528) W. 3 cl.  
Prereq.: 421.  
Secondary dominants, modulation to remote keys and elementary instrumentation.
- 423 Harmony III** U 3  
(529) Sp. 3 cl.  
Prereq.: 422.  
Chromatic chord forms, chromatic modulation, composition.
- 424 Ear-Training I** U 2  
(517) A. 4 lab. hrs.  
Prereq.: 223.  
Sight-singing, dictation, and keyboard harmony.
- 425 Ear-Training II** U 2  
(518) W. 4 lab. hrs.  
Prereq.: 424 and 421.  
Intermediate sight-singing, dictation and keyboard harmony.
- 426 Ear-Training III** U 2  
(519) Sp. 4 lab. hrs.  
Prereq.: 425 and 422.  
Advanced sight-singing, dictation, and keyboard harmony.
- 427 Keyboard Harmony I** U 2  
(567) A. 2 cl.  
Prereq.: 261.01 (6 cr. hrs.), 201.01 (6 cr. hrs.), or equiv.  
Systematic review and utilization of basic harmonic materials at the keyboard. Walker.
- 428 Keyboard Harmony II** U 2  
(568) W. 2 cl.  
Prereq.: 427.  
An introduction to score reading at the keyboard. Walker.
- 429 Keyboard Harmony III** U 2  
(569) Sp. 2 cl.  
Prereq.: 428.  
Score reading at the keyboard. Walker.
- 501 Applied Music** U 1, 2, or 4  
(509) Prereq.: 401.  
Concur.: 098, 099, 100. Performance in applied music at the professional level.  
Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.  
Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th, and 10th week of each qtr. Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.
- .01 Piano**  
A, W, Sp.
- .02 Voice**  
A, W, Sp.
- .03 Strings**  
A, W, Sp.
- .04 Woodwinds**  
A, W, Sp.
- .05 Brass**  
A, W, Sp.
- .06 Organ**  
A, W, Sp.
- .07 Percussion**  
A, W, Sp.
- .08 Harpsichord**  
A, W, Sp.
- .09 Harp**  
A, W, Sp.
- 521 Form and Analysis** U 3  
(530) A. 3 cl.  
Prereq.: 423.  
Introduction to the study of the formal structure of music. Kuehefuhs, McClure, Vedder, Barnes, Wilson.
- 524 Instrumentation** U 3  
(532) W, Sp. 3 cl.  
Prereq.: 423.  
An elementary course in scoring for the instruments of the orchestra and the band. McClure, Barnes.
- 531 Counterpoint** U 3  
(562) A. 3 cl.  
Prereq.: 423.  
A fundamental course in counterpoint including species counterpoint, double counterpoint, imitation, and two-voice canon. Barnes, Walker, Wilson.
- 535 Composition** U 3  
(581) W, Sp. 3 cl.  
Prereq.: 423.  
Creative writing in the small forms. Vedder, Huff.



**560 Beginning Conducting U 3**

(540) A, W, Sp. 3 cl.

Prereq.: 421.

The basic technique of the baton. A syllabus of selected literature and reading assignments will be used as a basis for study. *McGinnis, Simmons.*

**561 General Music in the Elementary School U 5**

(522) A, Sp. 4 cl., 2 hrs. lab.

Prereq.: Professional standing.

Study of music literature, teaching methods, and the role of the music teacher in developing general music programs in the elementary school. *Ramsey, Sexton.*

**562 General Music in the Secondary School U 3**

(523) A, Sp. 2 cl., 2 hrs. lab.

Prereq.: Professional standing.

Study of teaching practices and music literature suitable for general music classes in the secondary schools. *Ramsey.*

**563 Instrumental Music in the Schools U 5**

(541) A, W. 4 cl., 2 hrs. lab.

Prereq.: Professional standing.

The role of instrumental music in public education, techniques of teaching instrumental music, and materials appropriate to the needs of elementary and secondary school students. *Wilson, Benner.*

**564 Choral Music in the Secondary School U 3**

(544) W, Sp. 2 cl., 2 hrs. lab.

Prereq.: Professional standing.

Fundamentals of teaching choral music and materials appropriate to the choral music program in the secondary school. *Simmons.*

**593 Individual Studies U G 1-5**

(650) A, W, Sp.

Prereq.: Permission of instructor.

Individual studies in specified problems in the field of music.

**594 Special Group Studies U 1-5**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Supervised group studies of special problems.

**601 Applied Music U 1, 2, or 4**

Prereq.: 501.

Performance in applied music at the professional level. Instruction in applied music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.

Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th, and 10th week of each quarter. Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.

**.01 Piano**

A, W, Sp.

**.02 Voice**

A, W, Sp.

**.03 Strings**

A, W, Sp.

**.04 Woodwinds**

A, W, Sp.

**.05 Brass**

A, W, Sp.

**.06 Organ**

A, W, Sp.

**.07 Percussion**

A, W, Sp.

**.08 Harpsichord**

A, W, Sp.

**.09 Harp**

A, W, Sp.

**602 Graduating Recital U 1-2**

(510) A, W, Sp.

Prereq.: 601.

Special preparation for the presentation of the applied music graduating recital for the B. Mus. degree.

**621\* Analysis: The Classic Period U G 3**

(630) W. 3 cl.

Prereq.: 521 and 243.

An analytical study of representative works from Classic literature.

**622† Analysis: The Romantic Period U G 3**

(635) W. 3 cl.

Prereq.: 521 and 243.

An analytical study of representative works from Romantic literature. *Barnes, Vedder.*

**624†\* Band Scoring U G 3**

(632) A. 3 cl.

Prereq.: 524.

Scoring for the concert band. *Barnes.*

**625\* Orchestra Scoring U G 3**

(633) A. 3 cl.

Prereq.: 524

Scoring for the orchestra. *Barnes, Walker.*

**627† Advanced Keyboard Harmony U G 3**

(667) W. 3 cl.

Prereq.: 423.

Practice in harmonizing melodies, realizing figured bass, improvisation and modulation at the keyboard.

**631 Counterpoint I U G 3**

(662) W. 3 cl.

Prereq.: 531.

Studies in imitation and invertible counterpoint, applied in the writing of two- and three-part inventions.

**632 Counterpoint II** U G 3  
(664) A. 3 cl.

Prereq.: 631.

Writing of chorale preludes, trio sonata movements and fugal expositions. *Walker*.

**633 Gregorian Chant** U G 3  
(609) A. 3 cl.

A study of the historical background and characteristics of plain-song, including the technical aspects of notation, modes, rhythm, and chironomy. *Kuehefuhs*.

**634 Modal Counterpoint I** U G 3  
(659) W. 3 cl.

Prereq.: 521 and 243.

Counterpoint based on the vocal polyphonic style of the sixteenth century. Analysis of representative works and practice in motet writing. *Kuehefuhs*.

**635 Composition** U G 3  
(681) A, W, Sp. 3 cl.

Prereq.: 535.

Repeatable to a maximum of 9 cr. hrs.

Creative writing. Analysis, discussion, and employment of devices used in contemporary music. *Barnes, Walker*.

**640†\* Music in the Middle Ages** U G 3  
(613) A. 3 cl.

Prereq.: 521 or 531, and 243.

The development of western music through the fourteenth century. *Libby*.

**641†\* Music in the Renaissance** U G 3  
(612) W. 3 cl.

Prereq.: 521 or 531, and 243.

The development of musical styles from Dufay through Palestrina and Lassus. *Warner*.

**642†\* Music in the Baroque Period** U G 3  
(611) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

The development of musical styles from Monteverdi through Bach. *Mizter*.

**643 Music in the Classic Period** U G 3  
(607) A. 3 cl.

Prereq.: 521 or 531, and 243.

Vocal and instrumental music of the middle and late eighteenth century. *Warner*.

**644 Music in the Romantic Period** U G 3  
(601) W. 3 cl.

Prereq.: 521 or 531, and 243.

The music of the Romantic period in Germany and France.

**645 Modern Music** U G 3  
(603) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

Major trends in the development of music since 1900. *Hoppin*.

**646 The History of Music in the United States** U G 3

Sp. 3 cl.

Prereq.: Junior or senior standing.

A survey of music in the United States from colonial times until the present.

**647 Individual Composers: Their Lives and Works** U G 3

(617) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

A comprehensive study of the works of an individual composer; topic varies from year to year.

**648 Chamber Music Literature** U G 3  
(615) A. 3 cl.

Prereq.: 521 or 531, and 243.

A survey of chamber music of the Classic and Romantic periods.

**649 Symphonic Literature** U G 3  
(616) W. 3 cl.

Prereq.: 521 or 531, and 243.

A survey of orchestral music from the Classic period to the present. *Mizter*.

**650†\* Choral Literature** U G 3  
(614) A. 3 cl.

Prereq.: 521 or 531, and 243.

A survey of choral music from the Renaissance to the present. *Warner*.

**651 Opera Literature** U G 3  
(602) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

A survey of the antecedents of opera and a study of representative works from each of the major periods in the history of opera.

**652 Song Literature** U G 3  
(717) Sp. 3 cl.

The study of song literature including historical and philosophical backgrounds selected to meet the needs of the student, artist, or teacher; program building. *Gilliland*.

**653\* Piano Literature** U G 3  
(610) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

A study of the piano sonata and other characteristic forms from the pre-piano period to the present time. *Haddad, Tetley-Kardos*.

**654\* Organ Literature** U G 3  
(604) Sp. 3 cl.

Prereq.: 521 or 531, and 243.

A comprehensive survey from the earliest compositions to the works of present-day composers. *Held*.

**660 Advanced Conducting (Instrumental)** U G 3

(643) Sp. 3 cl.

Prereq.: 521 and 560.

This course aims to develop the power to interpret the larger forms of instrumental literature and to read from full score. *McGinnis*.

**661 Advanced Conducting (Vocal)** U G 3  
(646) W. 3 cl.

Prereq.: 521 and 560.

This course aims to develop the power to interpret the larger forms of choral literature and to read from full score. *Simmons*.



**680 Collegium Musicum** U G 2  
(650Z) A, W, Sp.

Study and performance of music from the Medieval, Renaissance, and Baroque periods. Practical study of early musical instruments. *Main.*

**681 Liturgies** U G 3  
(670) W. 3 cl.

A study of the historic liturgies of the church as a background for the work of the church musician. Contemporary movements in liturgical practice. *Held.*

**682 Hymnology** U G 3  
(672) A. 3 cl.  
*Prereq.: 423 or permission of instructor.*

An historical survey of Christian hymnody. Consideration of criteria for judging texts and tunes with regard to artistic quality and liturgical suitability. *Held.*

**683 Techniques and Materials for Church Choirs** U G 3  
(671) Sp. 3 cl.

A study of anthem materials, chants and propers, with consideration of programming and performance. *Held.*

**684 Field Experience in Church Music** U 2  
(576) A, W, Sp.  
*Prereq.: 560 and 683, or concur. 683.*  
*Repeatable to a maximum of 6 cr. hrs.*

Supervised experience in the actual church situation. *Held.*

**711† Theory Pedagogy** U G 3  
(719) Su. (1st term) 5 cl.  
*Prereq.: Mus. 4th yr. standing.*

The teaching of music theory in colleges and secondary schools. *Walker.*

**748 The Literature of the Piano** G 3  
*Prereq.: Admission to the M.M. curriculum for piano major or permission of instructor.*  
An intensive survey of the major literature for the piano with attention to forms and performance traditions.

**.01 The Literature of the Piano I**  
A. 3 cl.

**.11 The Literature of the Piano II**  
W. 3 cl.

**.21 The Literature of the Piano III**  
Sp. 3 cl.

**786 Introduction to Bibliographic Method** U G 3  
(620) A. 3 cl.  
*Prereq.: 521 or 531, and 243.*

The collection, examination and documentation of information about music. Including general as well as music library materials. *Mixter.*

**790 Problems in Vocal Music Education** U G 1-5  
(747) A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Study of problems encountered in the teaching and supervising of vocal music. *Schneider.*

**791 Problems in Instrumental Music Education** U G 1-5  
(749) A, W, Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

Study of problems encountered in teaching, supervising, and organization of the instrumental music program. *Schneider.*

**792 Choral Problems** U G 1-5  
(748) A, W, Sp.  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Study of the problems encountered in developing choruses and church choirs.

**801 Applied Music** G 1, 2, or 4  
(709) *Prereq.: Placement exam.*

A specialized and intense study of applied music literature and the techniques of performance.

Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.

Instruction is given in individual lessons of two one half-hour periods each week or the equivalent.

**.01 Piano**  
A, W, Sp. (2 or 4 cr. hrs.)

**.02 Voice**  
A, W, Sp. (2 or 4 cr. hrs.)

**.03 Strings**  
A, W, Sp. (2 or 4 cr. hrs.)

**.04 Woodwinds**  
A, W, Sp. (2 or 4 cr. hrs.)

**.05 Brass**  
A, W, Sp. (2 or 4 cr. hrs.)

*Evans.*

**.06 Organ**  
A, W, Sp. (2 or 4 cr. hrs.)

**.07 Percussion**  
A, W, Sp. (2 or 4 cr. hrs.)

**.08 Harpsichord**  
A, W, Sp. (2 or 4 cr. hrs.)

**.09 Harp**  
A, W, Sp. (2 or 4 cr. hrs.)

**811 Piano Pedagogy** G 3  
(720) Su. (1st term). 5 cl.  
*Prereq.: Mus. grad. standing and minimum of 6 cr. hrs. of applied study in piano.*

An analysis of the principles and practices current in the teaching of piano. *Rast, Haddad.*

**812 Vocal Pedagogy** G 3  
(721) Su. (1st term). 5 cl.  
*Prereq.: Mus. grad. standing and minimum of 6 cr. hrs. of applied study in voice.*

An analysis of the principles and practices current in the teaching of voice. *Gilliland.*

- 813 String Instrument Pedagogy** G 3  
(722) *Su. (1st term). 5 cl.*  
*Prereq.: Mus. grad. standing and minimum of 6 cr. hrs. of applied study in string instruments.*  
An analysis of the principles and practices current in the teaching of strings. *Culver.*
- 814 Woodwind Instrument Pedagogy** G 3  
(723) *Su. (1st term). 5 cl.*  
*Prereq.: Mus. grad. standing and minimum of 6 cr. hrs. of applied study in woodwind instruments.*  
An analysis of the principles and practices current in the teaching of woodwinds. *Wilson.*
- 815 Brass Instrument Pedagogy** G 3  
(724) *Su. (1st term). 5 cl.*  
*Prereq.: Mus. grad. standing and minimum of 6 cr. hrs. of applied study in brass instruments.*  
An analysis of the principles and practices current in the teaching of brass instruments. *Evans.*
- 821 Advanced Analysis: The Classic Period** G 3  
(730) *A. 3 cl.*  
*Prereq.: 621 or 622.*  
An analytical study of selected major works from the Classic literature. *Barnes.*
- 822 Advanced Analysis: The Romantic Period** G 3  
(731) *W. 3 cl.*  
*Prereq.: Two of the following courses: 621, 622, 821.*  
An analytical study of selected major works from the Romantic literature. *Barnes.*
- 823 Advanced Analysis: Post-Romantic to Modern Music** G 3  
(732) *Sp. 3 cl.*  
*Prereq.: 821 or 822.*  
Analysis of selected works reflecting the evolution from the post-romantic period to contemporary styles. *Walker.*
- 826 Development of Music Theory I** G 5  
(750) *A. 3 cl.*  
A study of the principal treatises on music theory before 1400. *Phelps.*
- 827 Development of Music Theory II** G 5  
(751) *W. 3 cl.*  
A study of the principal treatises on music theory from 1400 to 1700. *Phelps.*
- 828 Development of Music Theory III** G 5  
(752) *Sp. 3 cl.*  
Critical study of music and theory texts from 1700 to 1900. *Phelps.*
- 829 Contemporary Theories of Music** G 3  
(753) *Sp. 3 cl.*  
*Prereq.: Mus. grad. standing.*  
Fundamental concepts of theory construction and experimental verification of contemporary theories of music. *Poland.*
- 831\* Contrapuntal Techniques** G 3  
(765) *Sp. 3 cl.*  
*Prereq.: 631 or 632.*  
Analysis and stylistic writing of canons, invertible counterpoint, and variations. *Walker.*
- 832†\* Fugue** G 3  
(766) *Sp. 3 cl.*  
*Prereq.: 632.*  
Detailed study of the fugue; writing of three-voice and four-voice fugues. *Walker.*
- 833 Contrapuntal Techniques** G 3  
(850N) *A.*  
*Prereq.: 621 and 625 or permission of instructor.*  
Contrapuntal techniques in the works of twentieth-century composers. *Walker.*
- 834 Modal Counterpoint II** G 3  
(760) *Sp. 3 cl.*  
*Prereq.: 634.*  
Advanced counterpoint based on the vocal polyphonic style of the sixteenth century. *Kuehfuhs.*
- 835 Advanced Composition** G 3  
(780) *A, W, Sp.*  
*Prereq.: 2 qtrs. of 635 or equiv.*  
Creative writing in the large forms at an advanced level. *Barnes, Walker.*
- 836 Musical Uses of Electronic Devices** G 3  
(694) *A. 3 cl.*  
*Prereq.: Physics 501 or equiv.*  
Characteristics and uses of electronic devices for compositional, analytic, and experimental purposes in music. *Poland.*
- 837 Electronic Composition** G 3  
*W, Sp. 3 cl.*  
*Prereq.: 836, 2 qtrs. of 635.*  
*Repeatable to a maximum of 6 cr. hrs.*  
Creative writing employing electronic sound sources. *M. Barnes, Phelps, and Walker.*
- 838 Seminar in Experimental Music** G 3  
(795) *W, Sp. 3 cl.*  
*Prereq.: 836.*  
The application of electronic devices to analytical and experimental problems in music, *Phelps, Poland.*
- 841 Studies in Medieval Music** G 5  
(784) *A. 3-5 cl.*  
Problems and research in music before 1400. *Hoppin.*
- 842 Studies in Renaissance Music** G 5  
(785) *W. 3-5 cl.*  
Problems and research in music between 1400 and 1600. *Mixter.*
- 843 Studies in Baroque Music** G 5  
(786) *Sp. 3-5 cl.*  
Problems and research in music between 1600 and 1750. *Livingston.*



- 844†\* Studies in Classic Music** G 5  
(787) A. 3-5 cl.  
Problems and research in music of the late eighteenth century.
- 845†\* Studies in Romantic Music** G 5  
(788) W. 3-5 cl.  
Problems and research in music of the nineteenth century. *Hoppin*.
- 846†\* Studies in Modern Music** G 5  
(789) Sp. 3-5 cl.  
Problems and research in music of the twentieth century. *Main*.
- 847 Notation to 1300** G 5  
(702) A. 3 cl.  
*Prereq.: 840 or concur.*  
A study of neumes, the development of staff and square notation, primitive systems, rhythmic modes, Franconian notation, and the innovations of Petrus de Cruce. *Mizter*.
- 848 Notation of Fourteenth and Fifteenth Centuries** G 5  
(703) W. 3 cl.  
*Prereq.: 847.*  
A study of Ars Nova Notation, Mannered Notation, and the transition to white notation. *Hoppin*.
- 849 Notation of the Late Fifteenth and Sixteenth Centuries** G 5  
(704) Sp. 3 cl.  
*Prereq.: 848.*  
The study of proportions, keyboard notations, and lute tablatures.
- 850†\* The History of Performance Practices** G 5  
(701) Sp. 3 cl.  
A study of primary sources pertaining to contemporary attitudes and practices in the performance of music from the Middle Ages to the present. *Livingston*.
- 851 Musical Sources and Historiography** G 5  
(707) Sp. 3 cl.  
*Prereq.: 786.*  
A study of music historiography, supplemented by the examination of musical documents from each of the periods of music history. *Mizter*.
- 860 Basic Concepts in Music Education** G 3  
(621) Sp. 3 cl.  
*Prereq.: Ed. 586 or 587.*  
The principles of music education and of the educational and cultural objectives derived from related disciplines which give direction and purpose to the music education program. *Schneider, Cady*.
- 861 Principles of Music Learning** G 3  
(656) A. 3 cl.  
Analysis of the learning process in music as related to problems of music instruction in the public school. *Schneider*.
- 862 Principles and Practices in Elementary School Music** G 3  
(622) Su. 5 cl.  
Analysis and appraisal of the music program in elementary schools including the relationship of music to the total school program. *Ramsey*.
- 863† Literature for Elementary School Music** G 3  
(623) Su. 3 cl.  
A critical study of folk and art music of various cultures and historic periods for the general vocal and listening activities of the integrated curriculum. *Ramsey*.
- 864 Principles and Practices in Vocal Music Education** G 3  
(524) Su. 5 cl.  
Analysis and appraisal of the organization, purpose, and development of the vocal music program in secondary schools. *Simmons*.
- 865 Literature for Vocal Music Education** G 3  
(625) Su. 5 cl.  
A study of vocal literature of various cultures and historic periods for use with choral groups in the secondary music program. *Simmons*.
- 866 Teaching Practices in General Music** G 3  
(626) Su. 3 cl.  
*Prereq.: Permission of instructor.*  
Study of current concepts in organizing and teaching general music in the secondary school. *Ramsey*.
- 867† Curricular Trends in General Music** G 3  
(627) Su. 5 cl.  
*Prereq.: 248, Fine Arts 110 or 111.*  
Analysis and development of programs in general music in which music is taught with reference to other art forms. *Ramsey*.
- 868 Principles and Practices in Instrumental Music Education** G 3  
(541) Su. 5 cl.  
Role of instrumental music in the public schools: relationship to society, and the total music program, historical development, evaluation, and future trends. *Benner, Wilson*.
- 869 Literature for Instrumental Music Education** G 3  
(642) Su. 5 cl.  
Relationship of teaching materials and performance repertory to education objectives: selection of literature, interpretation, rehearsal procedures, conducting problems, attainment of musical understanding through literature. *Wilson, Benner*.
- 870 Introduction to Research in Music Education** G 3  
(650X) W. 3 cl.  
*Benner*.

**871 Supervision of Music Education Programs** G 5

(712) Su. 5 cl.

A study of specific problems of music supervision with special attention to music program evaluation and curriculum development. *Simmons*.

**872 Administration in Music Education** G 3

(850C) Sp. 3 cl.

Prereq.: Permission of instructor.

Seminar.

**873 Comparative Music Education** G 3

(850D) Su. 3 cl.

Prereq.: Permission of instructor.

An analysis and comparison of music education programs in other countries including the study of curriculum, teaching procedures, and programs of teacher preparation. *Schneider*.

**874 The Development of Music Education** G 3

(850E) Su. 3 cl.

Prereq.: Permission of instructor.

The development of music education from the early Greek society to the present day tracing major trends and the influence of certain persons. *Schneider, Cady*.

**875 Psychological Factors in Music Education** G 3

(850I) A. 3 cl.

Seminar. *Schneider*.

**876 Evaluation and Measurement in Music Education** G 3

W. 3 cl.

Prereq.: Psychol. 608.

Seminar. *Schneider*.

**877 Social Factors in Music Education** G 3

Sp. 3 cl.

Seminar. *Cady*.

**878 Music Education and the Curriculum** G 3

(850J) A.

A study of the application of music education in the school curriculum. *Schneider*.

**879 Music in Higher Education** G 3

(850K) W.

*Schneider*.

**881 Factors in Choral Tone Production** G 3

(850Q) W. 3 cl.

A study of choral blend and other vocal techniques.

**899 Interdepartmental Seminar** G 1-5

A, W, Sp.

**993 Individual Studies** G 1-5

(880) A, W, Sp.

Individual research projects not connected with the dissertation.

**994 Advanced Group Studies** G 3-5

A, W, Sp.

Repeatable to a maximum of 15 cr. hrs.

**.01 Seminar in Music Theory**

(880B)

*Barnes, Phelps, and Walker*.

**.02 Seminar in Music Education**

(880C)

*Schneider*.

**.03 Seminar in Music History**

(881)

*Livingston, Hoppin*.

**999 Research in Music** G Arr.

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## National Security Policy Studies

Office: 199 W. 10th Avenue.

**693 Individual Studies in National Security Policy** U G 3

(701) A, W, Sp. Arr.

Prereq.: Permission of instructor.

A special national security topic is assigned to each student for reading and a report. *Staff*.

**702 Introduction to National Security** U G 3-5

A. 1 cl.

Prereq.: Permission of instructor.

Examination of approaches taken by various social science disciplines to field of national security; survey of literature in field; identification of major problem areas. *Staff*.

**785 Research Principles and Techniques in National Security** U G 3-5

(703) W. 1 cl.

Prereq.: 702 or permission of instructor.

Repeatable with permission of instructor to a maximum of 10 cr. hrs.

Examination of particular policy problems and the application thereto of social science analytical techniques. *Robinson*.

**801 Seminar in National Security Research** U G 3-5

Sp. 1 cl.

Prereq.: 702 or permission of instructor.

For advanced graduate students preparing Master's theses and doctoral dissertations in the field of national security. Formulation and application of social science research designs to specific aspects of national security.



## Naval Science

Office: 179 Navy Annex, Physical Education Building,  
337 West 17th Avenue.

CAPTAIN WEHMEYER and STAFF.

The sequence of courses is the same for all officer candidate students for the first two years. At the end of the second year, students may apply to specialize in Supply or the Marine Corps, in which case there is a variation in course presentation. Naval science courses are open to a limited number of civilian students with permission of the Professor of Naval Science.

Normal sequence of courses is as follows: (Naval Science unless otherwise indicated.)

- First Year:** All candidates—141, 142, 143.  
**Second Year:** All candidates—241, Psychol. 300, (403), 243.  
**Third Year:** Line candidates—341, 342, 343.  
 Marine candidates—351, 352, 353.  
 Supply candidates—361, 362, 363.  
**Fourth Year:** Line candidates—441, 442, 443.  
 Marine candidates—451, 452, 453.  
 Supply candidates—461, 462, 443.

### 141 Naval Orientation U 3

(441) A. 3 cl., 1 2-hr. lab.

The basic study of naval lore, covering organization, customs, discipline, vessels of the U.S. Navy, introduction to seamanship, leadership, and tactics.

### 142 Naval History, Part I U 3

(442) W. 3 cl., 1 2-hr. lab.

Prereq.: 141.

The study of Naval History from earliest recorded history up to World War I, with particular emphasis on the principles of war in influence of sea power upon history.

### 143 Naval History, Part II U 3

(443) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 142.

The continued study of Naval History from the beginning of World War I to the present time.

### 241 Naval Weapons, Part I U 3

(541) A. 3 cl., 1 2-hr. lab.

Prereq.: 143 or permission of Department Chairman.

A broad basic study of naval gunnery, including the fire control problem. An introduction to anti-submarine warfare.

### 243 Naval Weapons, Part II U 3

(543) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 241.

More advanced study of Naval Weapons and their employment, including guided missiles and nuclear weapons, and a basic study of the technology of space.

### 341 Naval Operations U 3

(641) A. 3 cl., 1 2-hr. lab.

Prereq.: 243 or completion of summer camp.

A study of fleet operations, including tactics, tactical communications, meteorology. Rules of the Nautical Road, and the principles of relative motion.

### 342 Naval Operations and Introduction To Navigation U 3

(642) W. 3 cl., 1 2-hr. lab.

Prereq.: 341.

A study of the Naval Communications system, shipboard organization, administration and the electronic and dead reckoning methods of marine navigation.

### 343 Celestial Navigation U 3

(643) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 342.

The determination of position by celestial methods of navigation.

### 351 Evolution of the Art of War, Part I U 3

(651) A. 3 cl., 1 2-hr. lab.

Prereq.: 243 or completion of summer camp.

A study of the evolution of weapons and tactics, illustrating the principles and variables of war used in certain battles from Alexander through the Mexican War.

### 352 Evolution of the Art of War, Part II U 3

(652) W. 3 cl., 1 2-hr. lab.

Prereq.: 351.

A continuation of the study of Evolution of the Art of War from the beginning of the Civil War to the end of World War II.

### 353 Modern Basic Military Strategy and Tactics U 3

(653) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 352.

A survey of modern strategical and tactical principles, and current military developments.

### 361 The Navy Supply System and Supply Management Afloat, Part I U 3

(661) A. 3 cl., 1 2-hr. lab.

Prereq.: 243 or completion of summer camp.

A study of the system of procurement, control and distribution of materials required by the Navy; introduction to Supply Management procedures afloat.

### 362 Supply Management Afloat, Part II U 3

(662) W. 3 cl., 1 2-hr. lab.

Prereq.: 361.

A continuation of supply management afloat, including the procedures for receipt and storage of stock and the naval accounting system afloat.

### 363 Supply Management Afloat, Part III U 3

(663) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 362.

A continuation of the study of supply management afloat, including the expenditure and control of material and financial management afloat.

### 441 Naval Engineering U 3

(741) A. 3 cl., 1 2-hr. lab.

Prereq.: 343.

Principles of ship stability and buoyancy in the practice of damage control. Theory of construction, installation and operation of a modern naval steam engineering plant.

**442 Naval Engineering and Introduction to Naval Administration U 3**

(742) W. 3 cl., 1 2-hr. lab.  
Prereq.: 441.

A study of electricity, naval auxiliary systems and ship-board organization and administration.

**443 Naval Administration U 3**

(743) Sp. 3 cl., 1 2-hr. lab.

Uniform Code of Military Justice. The psychology of human relations and the techniques of leadership; career planning.

**451 Amphibious Warfare, Part I U 3**

(751) A. 3 cl., 1 2-hr. lab.

The history of amphibious warfare and its development from Gallipoli through Korea.

**452 Amphibious Warfare, Part II U 3**

(752) W. 3 cl., 1 2-hr. lab.

A familiarization with the doctrinal techniques and present concepts of amphibious warfare including the planning phase.

**453 Leadership and the Uniform Code of Military Justice U 3**

(753) Sp. 3 cl., 1 2-hr. lab.

Survey of the UCMJ and a study of the psychology of human relationships and techniques of leadership as applied by Marines.

**461 Retail Sales U 3**

(761) A. 3 cl., 1 2-hr. lab.

A study of the clothing and small stores afloat organization, accounting procedures and related reports; introduction to Ship's Store Afloat.

**462 Advanced Retail Sales and Naval Administration U 3**

(762) W. 3 cl., 1 2-hr. lab.

A continuation of the study of Ship's Store Afloat, including stock control, sales procedures and related reports, the psychology of human relations and the techniques of leadership.

## Nuclear Engineering

Office: 1065 Robinson Laboratory, 206 West 18th Avenue. ASSOCIATE PROFESSOR †GLOWER (Chairman); PROFESSORS †DRYDEN, †FONTANA, †JONES, †POOL, and †SPEISER; ADJUNCT ASSOCIATE PROFESSORS BRUNTON and REDMOND; ASSISTANT PROFESSORS †STAEHLE and SWARTZ.

**505 Introduction to Nuclear Science U G 3 and Engineering**

W, Sp. 3 cl.

Prereq.: Math. 255 and Physics 255, or permission of instructor.

Not open for graduate credit in Nuclear Engineering.

Discussion of nuclear energy and nuclear radiation; sources, methods of utilization, and projections for future engineering uses.

### Corrosion

A, Sp. 2<sup>nd</sup> cl., 1 2-hr. lab.

(See under Met. E. 635.)

### Materials for Nuclear Technology

A. 3 cl.

(See under Met. E. 675.)

**710 Applied Nuclear Engineering U G 3**

A, Sp. 3 cl.

Prereq.: Physics 551 or equiv., Math. 255, Eng. Mech. 420.

Industrial and research applications of radioactive isotopes; thickness and density, food irradiation, direct energy conversion, activation analysis, radioactive tracers, topics in bioengineering.

### Nuclear Power Plants

Sp. 3 cl.

(See under Mech. E. 726.)

**743 Nuclear Engineering Laboratory I U G 3**

A, Sp. 2 3-hr. lab.

Prereq.: Physics 551 or equiv., Math. 255.

Experimental investigations of nuclear radiation interactions with matter; a discussion and experimental verification of radiation detection and shielding principles.

**744 Nuclear Engineering Laboratory II U G 3**

W, Sp. 2 3-hr. lab.

Prereq.: 743 and/or concur. 763.

Experimental nuclear reactor analysis; understanding of the basic nuclear and reactor parameters and utilizing these fundamental concepts in an economical engineering design.

**763 Nuclear Reactor Analysis U G 3**

(763) A. 3 cl.

Prereq.: Physics 551, Math. 412 or equiv.; concur. Physics 571.

Reactor theory, probability concepts and nuclear cross sections, the multiplication constant and neutron flux, neutron slowing down process, diffusion theory, Fermi Age Theory, homogeneous reactors, heterogeneous reactors, reactor kinetics.

**770 Plasmas and Controlled Fusion U G 3**

W. 3 cl.

Prereq.: Physics 571, Mech. E. 511 or Physics 742 or equiv.

The Thermonuclear problem; approaches to a stable and sufficiently hot plasma. Nuclear reactions, plasma kinetics, diagnostic devices, and engineering problems in research, development, and power production.

### Introduction to Nuclear Chemical Engineering

W. 3 cl.

(See under Chem. E. 777.)

### Nuclear Chemical Engineering

Sp. 3 cl., 3 hr. lab.

(See under Chem. E. 778.)



**820 Reactor Dynamics and Control G 3***Sp. 3 cl.**Prereq.: 763, Elec. E. 520 or permission of instructor.*

Nuclear reactor and nuclear reactor system operation; control system performance requirements and control mechanisms; automatic control systems and their performance with transient and with steady state operation.

**845 Advanced Laboratory Studies G 3-6***A, W, Sp.**Prereq.: 743 or 744, and permission of instructor.*

Experimental treatment of advanced nuclear engineering concepts.

**856 Advanced Nuclear System Design Concepts G 4***Sp. 3 cl., 8-hr. lab.**Prereq.: 726, concur. 864.*

Investigation of advanced-converter-reactor design concepts, design problems and basic concepts of thermal and fast breeder reactors, design and economics study of a total reactor system.

**864 Advanced Nuclear Reactor Analysis G 5***(884) W. 5 cl.**Prereq.: 763, 820, Math. 602, Physics 621 or 721.*

Neutron transport theory, three dimensional multigroup reactor analysis utilizing perturbation theory, new reactor concepts. A high speed digital computer is utilized to facilitate analysis.

**881 Nuclear Engineering Seminar G 1***(890) A, W, Sp. 1 cl.**Prereq.: Grad. standing in Nuclear E.**Repeatable to a maximum of 4 cr. hrs.*

Current topics in Nuclear Engineering.

**885 Advanced Topics G 1-5***(898) A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

An advanced treatment of some field of nuclear engineering of current interest not presently covered in other courses. Topic to be announced for each quarter. *Glower.*

**999 Research in Nuclear Engineering G Arr***(850) A, W, Sp.*

Research for thesis or dissertation purposes only.

**Nurse Anesthesiology***(School of Allied Medical Services)*

*Office: 632 University Hospital, 410 West 10th Avenue*  
INSTRUCTOR LANG (*Division Director*); PROFESSOR HAMELBERG; and STAFF.

**401 Introduction to Anesthesia P 15***Su, A, W, Sp.**Prereq.: Graduation from an accredited School of Nursing.*

Education and training of nurses in the field of anesthesia; management of technical aspects of anesthesia under physician supervision.

**402 Clinical Anesthesia P 15***Su, A, W, Sp.**Prereq.: 401.*

Advanced study of anesthetic agents, techniques, pharmacology, and physiology with clinical applications.

**403 Pediatric Anesthesia P 15***Su, A, W, Sp.**Prereq.: 402.*

Advanced study of introductory and clinical anesthesia as applicable to pediatric anesthesia. Training is received at the affiliated Children's Hospital.

**404 Advanced Anesthesia I P 15***Su, A, W, Sp.**Prereq.: 403.**Repeatable to a maximum of 45 hrs.*

Emphasis of study will be on more difficult anesthetic procedures and in patients with difficult disease processes.

**405 Advanced Anesthesia II P 15***Su, A, W, Sp.**Prereq.: 404.*

Instruction in the care of the patient undergoing cardiopulmonary bypass and thoracic anesthesia.

**406 Advanced Anesthesia III P 15***Su, A, W, Sp.**Prereq.: 405.*

Instruction in the care of the patient undergoing neurosurgery.

**Nursing**

*Office: School of Nursing, B-201 Starling-Loving Hall, 410 West 10th Avenue.*

PROFESSORS NEWTON (*Director*) and SHIRK; ASSOCIATE PROFESSORS BELLAM, BUCKERIDGE, CHAMBERS, HARVEY, LEAZENBEE (*Emeritus*), LEWIS, PEASE, PRICE, SUMP, THOMAS, and WITTMAYER; ASSISTANT PROFESSORS BREEZE, CLARK, COLVER, CURREY, DILLEY, FAIR, GEISER, JOHNSTON, KRUMAN, KRUSE, MARTIN, PIERCE, POLCYN, ROLLER, SCHEYER, SCHOENLAUB, SCHWARTZ, SHAW, SUHRE, TULLY, WALLACE, and WILLIAMS.

**201 Introduction to Clinical Experiences for Medical Technologists U 2***(563) Su. 2 cl.**Prereq.: Med. Tech. 4th yr. standing.*

This course acquaints the medical technology student with hospital and health center functioning and helps her develop selected patient-care skills. *Price and Staff.*

Open only to students registered in the School of Nursing.

**301 Fundamentals of Nursing U 6***(599) A. 3 cl., average of 12 hrs. clinical study per week.**Prereq.: Anat. 200, Microbiol. 210.*

Study of basic needs of hospitalized adult patients and the functions of the nurse in meeting these needs.

**310 Medical Nursing I U 8**(547) *W, Sp. 4 cl., 16 hrs. clinical study.**Prereq.: 301.*

The nursing care of adult patients treated medically; emphasis on care required by patients with cardiovascular and gastrointestinal problems and diabetes mellitus.

**311 Surgical Nursing I U 8**(548) *W, Sp. 4 cl., and average of 16 hrs. clinical study per week.**Prereq.: 301.*

Study of the care of adult patients who have common surgical procedures and require minimal rehabilitation.

**350 Problem Solving in Nursing U 6**(604) *Su, A, W, Sp. 3 cl. and average of 12 hrs. clinical study per week.**Prereq.: 310, 311; Engl. 103, Microbiol. 210, Physiol. 311, Psychol. 100, Soc. 101.*

The process of planning, providing, and evaluating nursing care of selected patients.

**410 Medical Nursing II U 8**(647) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study per week.**Prereq.: 310, 311.*

Nursing care of patients with long-term illness and those requiring intensive rehabilitation; emphasis on patients with problems associated with respiratory, musculoskeletal and nervous systems.

**411 Surgical Nursing II U 8**(648) *Su, A, W, Sp. 4 cl. and average of 16 hrs. clinical study per week.**Prereq.: 310, 311.*

Study of the care of adult patients whose surgical intervention requires short or long term changes in living.

**420 Maternity Nursing U 8**(613) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study (ward conf., discussion groups, nursing lab., clinical practice, and human relations lab.)**Prereq.: 310, 311.*

Knowledge, understanding, and skill necessary in providing nursing care to the mother in the antepartal, intrapartal, and postpartal periods in one quarter.

**421 Pediatric Nursing U 8**(614) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical conf., and field trips.**Prereq.: 310, 311, and Home Ec. 363.*

Physiological and psychological changes occurring in the growing child and the impact of illness or handicap on the child, the family and community.

**530 Public Health Nursing U 5**(617) *Su, A, W, Sp. 5 cl.**Prereq.: 410, 411, 420, 421.**Not open to students with credit for 602 and 639.*

A study of the development and trends of public health nursing and the basic principles underlying its practice.

**531 Public Health Nursing Field Experience U 8**(619) *Su, A, W, Sp.**Prereq. or concur.: 530, Prev. Med. 618.*

Supervised experience is provided in a public health agency which offers a generalized program emphasizing family health.

**540 Nursing Study of The Psychiatric Patient U G 8**(663) *Su, A, W, Sp. 4 cl. and average of 16 hrs. clinical study per week.**Prereq.: 410, 411, 420, 421.*

Nursing study of the psychiatric patient as an interpersonal, problem-solving process. (Conferences, discussions, clinical practice.)

**550 Leadership and Management in Nursing U G 8**(676) *Su, A, W, Sp. 3 cl., and 20-24 hrs. clinical study per wk.**Prereq.: 410, 411, 420, 421.*

Effective team member and team leader experiences; observation and selected experiences in unit management; and guided study of a nursing problem. (Conferences, discussions, clinical practice, human relations laboratory.)

**551 Occupational Orientation to Nursing U G 10**(677) *Su, A, W, Sp. 4 cl., and 24 hrs. clinical study per wk.**Prereq.: 410, 411, 420, 421.*

Guided practice of professional nursing; requirements and responsibilities in present day practice, job opportunities, and professional relations.

**561 History of Nursing U 3**(649) *A, W, Sp. 3 cl.**Prereq.: Nurs. 3rd yr. standing.*

The effect of religious, military, secular, and educational influences on the development of nursing.

**685 Field Instruction in Nursing**(746) *A, W, Sp. 2 cl., 4 hrs. clinical experience per cr. hr.**Prereq.: permission of advisor.*

*The first qtr. of registration in this course must be for 4 cr. hrs.*

Application of scientific method of study to selected nursing and teaching problems; includes observation and participation in clinical situation, conferences, library study, field trips, and written reports.

- |                                    |         |
|------------------------------------|---------|
| .01 Medical Surgical Nursing.      | U G 4-8 |
| Chambers.                          |         |
| .02 Psychiatric Nursing. Lewis     | U G 4-8 |
| .03 Supervision and Administration | U G 4-7 |
| .04 Teaching. Pease                | U G 4-7 |

**710 Advanced Medical-Surgical Nursing U G 3**(740) *A, W. 3 cl.*

Intensive study of selected medical-surgical problems. Students do independent study and participate in conference and seminars. *Chambers.*

**711 Advanced Medical-Surgical Nursing U G 3**(741) *W, Sp. 3 cl.**Prereq.: 710.*

Continuation of 710. *Chambers.*

**740 Interpersonal Aspects of Nursing U G 3**(736) *A. 3 cl.*

Influence of modern psychiatry on nursing practice. Emphasis given to nursing as a significant interpersonal process. Independent study, conferences, and seminars. *Lewis.*



- 741 Interpersonal Aspects of Nursing** U G 3  
(797) W. 3 cl.  
Prereq.: 740.  
Continuation of 740. Lewis.

- 750 Fundamentals of Nursing Administration** U G 5  
W. 5 cl.  
Prereq. or concur.: Grad. standing in nursing service administration curriculum, 710, 711, 785, and Bus. Org. 500, 702.  
Study of the fundamentals of planning, organizing, and controlling nursing service departments.

- 751 Supervision of Nursing Services** U G 5  
Sp. 4 cl. and 3 hr. planned observations.  
Prereq. and concur.: Grad. standing in nursing service administration curriculum, 750, and Bus. Org. 660.

Exploration of major problems of nursing administration at the supervisory level. Includes observation of clinical situations, conferences, field trips and written reports.

- 752 Administration of Nursing Services** U G 5  
Su. 4 cl. and 3 hr. planned observations.  
Prereq. or concur.: Grad. standing in nursing service administration curriculum, 751.

Exploration of major problems of nursing administration at the top administrative levels. Includes observations of administrative situations, conferences, field trips and written reports.

- 770 Curriculum Development** G 5  
(810) W. 5 cl.  
Prereq.: 4 cr. hrs. of 685.01 or 685.02.

Study of theories of higher education related to education for nursing and principles of curriculum development. Students apply these principles to program planning in nursing. Pease.

- 771 Methods of Teaching Nursing** U G 4  
(796) Su, Sp. 4 cl.  
Prereq. or concur.: Educ. 607, Nurs. 770 recommended.

Instructional planning for courses in clinical nursing with opportunities to develop teaching-learning units and tools to assess learning outcomes. Pease, Anderson.

- 785 Research Development in Nursing** G 3  
(802) A, W. 3 cl.  
A seminar on the status and scope of research in nursing. Written reports and comparison of various types of research studies will be required. Newton, Shirk.

- 793 Individual Studies in Nursing** U G 1-5  
(701) Su, A, W, Sp.  
Prereq.: Permission of instructor.

Reading, conferences, and minor investigation by an individual student who wishes to study a particular nursing problem intensively.

- 994 Special Group Studies in Nursing** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 5 cr. hrs.

Reading and group conferences for graduate students who desire to study a particular trend in nursing or nursing education.

- 999 Research in Nursing** G Arr.  
(950) Su, A, W, Sp.  
Research for thesis purposes only.

## Obstetrics and Gynecology

Office: N-635 University Hospital, 410 West 10th Avenue.  
PROFESSORS †ULLERY (Chairman), †HOLLENBECK, and †MEILING; ASSOCIATE PROFESSORS †BESCH, BOUTSELIS, †COPELAND, †HOLZAEFFEL, †VORYS, and WILLIAMS; ASSISTANT PROFESSORS deNEEF, DeVOE, McLAIN, †RIGSBY, RUSSELL, †STEVENS, †TETERIS, and TRELFOED; INSTRUCTORS COURI, DICKEY, and NERI.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ophthal., Otol., Phys. Med., Ped., Prev. Med., Psychiatry, Radiol., and Surg.]

[Panel discussions by staff and representatives of allied fields of selected demonstrated patients, correlating anatomy, physiology, biochemistry, and pathology with current philosophy, ideas, and attitudes. Ullery and Staff.]

- 737 Clinical Obstetrics and Gynecology** P 12

2 months, offered in July, Sept., Nov., Jan., Mar., or May. Registration, for Mar. only, for W. (6 cr. hrs.) and Sp. (6 cr. hrs.)

Prereq.: Med. 3rd yr. standing.

Normal and abnormal obstetrics and diseases of the female generative tract; management and philosophy of current therapy. Supervised in-patient and out-patient experience.

- 740 Fetus and Newborn** P 6  
1 month, offered Aug., Dec., May.  
Prereq.: 737, Ped. 715.

Reproduction biology and human development; the fetal-maternal axis and the product of conception; supervised clinical training and service.

- 745 Reproduction Endocrinology and Infertility** P 6  
1 month, offered Sept. and Mar.  
Prereq.: 737.

Selective endocrinologic aspects of the specialty; correlation of biochemical, histochemical and cytologic aspects with clinical problems.

**751 Obstetric and Gynecologic Specialties P 6**

1 month, offered all months.

Prereq.: 737.

Repeatable by permission of instructor.

Instruction in the newer and more advanced techniques of diagnosis and therapy which would have been neither feasible nor possible on the wards nor in the clinics.

- .01 Obstetric emphasis
- .02 Gynecologic emphasis

**793 Individual Studies in Obstetrics and Gynecology**

1 month, offered all months.

P 6

Su, A, W, Sp.

G 2-5

Prereq.: Permission of Chairman.

Clinical, laboratory, conference, and library work in Obstetrics and/or Gynecology.

- .01 Obstetric emphasis.
- .02 Gynecologic emphasis.

**799 Residency in Obstetrics and Gynecology P 18**

Su, A, W, Sp.

12 months, full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 360 cr. hrs.

Rotation through obstetric and gynecologic sub-specialties, in-patient and out-patient services; supervisory and teaching responsibility in the patient-care team; rounds and conferences.

**900 Obstetric and Gynecologic Pathology G 2-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 8 cr. hrs.

Laboratory, conference, and library work. Study of current pathological specimens with emphasis upon special investigation. Ullery, Meiling, Hollenbeck, Holzaepfel, Williams, Boutsalis, Besch.

**999 Research in Obstetrics and Gynecology G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

**201 Occupational Therapy Orientation U 1**

(401) A. 2 cl.

Prereq.: Registration in Oc. Ther. curriculum.

The scope of occupational therapy is presented with its relationship to broad fields of education and medicine and to other allied health professions. Locher, Grant and Ross.

**202 Occupational Therapy Orientation U 1**

(402) W. 2-hr. lab.

Prereq.: 201.

Continuation of 201.

**203 Occupational Therapy Orientation U 1**

(403) Sp. 2-hr. lab.

Prereq.: 202.

Continuation of 202.

**204 Occupational Therapy U 1**

(404) Su, A, W, Sp. 2-hr. lab.

Prereq.: 203.

Additional preclinical experiences. Locher.

**301 Departmental Organization U 2**

A. 2 cl.

Prereq.: Registration in Oc. Ther. curriculum.

Occupational therapy relationships within the institution and community. A study in program planning based on treatment methods including budgets, equipment, supplies, records, and staffing implications. Grant.

**403 Occupational Therapy U 8**

(603) Sp. 5 cl., 3 2-hr. lab.

Prereq.: Anat. 201, Physiol 311, Phys. Ther. 303.

Neurological and orthopedic medical information correlated with treatment principles and methods through activity in cases of loss of muscle power, limited joint motion, and amputation. Grant, visiting neurologist, and orthopedists.

**404 Occupational Therapy U 8**

(604) W. 5 cl., 3 2-hr. lab.

Prereq.: Psychol. 330.

Information, discussion, and demonstration of medical problems, and use of activities, self and groups in the total treatment program of neuropsychiatric and mentally deficient patients. Locher and psychiatrists.

**405 Occupational Therapy U 5**

(605) A. 2 cl. 3 2-hr. labs.

Prereq.: Anat. 201, Phys. Ther. 303, 304, and Physiol. 311 or concur.

Principles and methods of treatment in cases of lack of coordination; adaptation of equipment to meet activity needs of the individuals so involved. Grant.

**406 Occupational Therapy U 2**

(606) A. 2 cl.

Prereq.: 404.

Advanced theory of occupational therapy in psychiatry. Locher.

**407 Occupational Therapy U 8**

(602) A. 5 cl., 3 2-hr. labs.

Prereq.: Anat. 201, concur. Physiol. 311.

## Occupational Therapy

(School of Allied Medical Services)

Office: A-348 Starling Loving Hall, 320 West 10th Avenue.  
PROFESSOR LOCHER (Division Director); ASSOCIATE PROFESSOR HEERMANS; ASSISTANT PROFESSOR ROBERTS; INSTRUCTORS GRANT, PRENDERGAST, and ROSS.

**200 Survey of Occupational Therapy U 1**

(500) Su, A, W. 1 cl.

The development of occupational therapy and survey of its relationship, history, standards, trends, applications, personnel, opportunities, and problems. Locher.



Medical information correlated with theory of treatment through activity for general medical and surgical conditions, including tuberculosis, cardiac, geriatric, pediatric, visual, and auditory disabilities. *Ross, visiting physicians.*

**415 Occupational Therapy Seminar U 1**  
(615) W. 1 cl.

*Prereq.: Major standing in Oc. Ther.*

Discussion and demonstration of current methods and problems in occupational therapy. *Locher, Grant, and Ross.*

**416 Occupational Therapy Seminar U 1**  
(616) Sp. 1 cl.

*Prereq.: 415.*

Continuation of 415.

**417 Occupational Therapy Seminar U 1**  
(617) A. 1 cl.

*Prereq.: 416.*

Continuation of 416.

**420 Clinical Practice in Occupational Therapy U 6**

(620) Su, A, W, Sp.

*Prereq.: An average pt. hr. of 2.25 in all professional courses and permission of chairman.*

*Initial registration in this course may come in the summer following completion of the ninth qtr. of the professional program and may be either for one term or the qtr.*

*Repeatable to a maximum of 18 cr. hrs.*

A practical experience in application of the principles and functions of occupational therapy in selected hospitals, rehabilitation centers, clinics, curative workshops, and convalescent facilities.

## Ophthalmology

*Office: N-350 University Hospital, 410 West 10th Avenue.*  
PROFESSORS †MAKLEY (Chairman), BLACKWELL, †HAVENER, and PERRY; ASSOCIATE PROFESSORS ANDREW, BATTLES, MOSES, †KEATES, and †SUIE; ASSISTANT PROFESSORS BARTON, BITONTE, BONTLEY, †BREDEMEYER, de la MOTTE, KAPETANSKY, LETSON, LONG, MAGNUSON, SAGE and STINE.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with departments of Med., Ob. and Gyn., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

(A unique presentation in programmed learning of ophthalmoscopic findings as they relate to various systemic disorders.)

**751 Group Studies in Ophthalmology P 1**  
1 month, Oct. and Jan.

*Prereq.: Med. 4th yr. standing.*

Fundamentals of ophthalmology applicable in general practice and in other medical specialties. *Makley.*

**793 Individual Studies in Ophthalmology**

1, 2, or 3 months.

P 6, 12, 18

Su, A, W, Sp.

G 1-5

*Prereq.: Permission of chairman.*

Research in division of:

- .01 Ophthalmic Microbiology
- .02 Ophthalmic Immunology
- .03 Ophthalmic Pathology
- .04 Retinal Diseases

**799 Residency in Ophthalmology P 18**

Su, A, W, Sp.

12 months full time, beginning July 1.

*Prereq.: Appointment as Resident, University Hospital.*

*Repeatable to a maximum of 216 cr. hrs.*

Rotation through ophthalmology clinical and outpatient services; consultative activities, supervisory and teaching responsibilities in the patient-care team; conferences and rounds.

**850 Seminar in Ophthalmology G 3-5**

(800) A, W, Sp.

*Prereq.: Permission of instructor.*

Each student is responsible for presenting material at least twice a year. Attendance at weekly Grand Round on the Ophthal. service is included.

**999 Research in Ophthalmology G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

## Optometry

*Office: 111 Optometry Building, 388 West 10th Avenue.*

ASSOCIATE PROFESSOR †HEBBARD (Director); PROFESSOR †FRY; ASSOCIATE PROFESSORS †HILL and †WILD; ASSISTANT PROFESSORS BAILEY, †ESKRIDGE, HAINES (Emeritus), MOTE, and REESE.

**401 Survey of Optometry P 1**

A. 1 cl.

*Prereq.: Optom. 1st year. standing.*

Development of optometry and optometric education; scope of optometric services; sources of vision information; kinds of current vision research.

**431 Mechanical Optics I P 4**

(531) W. 3 cl., 1 2-hr. lab.

*Prereq.: Optom. 2nd yr. standing, Physics 112 and Math. 150.*

Classification of ophthalmic lenses; physical characteristics, manufacture, and testing of optical glass and lenses; system of distribution and stocking; grinding and polishing; measuring refracting power. *Wild.*

**432 Mechanical Optics II P 4**

(532) Sp. 3 cl., 1 2-hr. lab.

*Prereq.: 431.*

Classification, description, manufacture, and distribution of frames and mountings. Laboratory practice in grinding, polishing, and mounting lenses, and repairing and reconstructing frames and mountings. *Wild.*

- 433 Mechanical Optics III** P 4  
(533) A. 3 cl., 1 2-hr. lab.  
Prereq.: 432.

History and basic theory of ophthalmic lenses; facial measurements; writing specifications for lenses and frames to be assembled. *Wild.*

- 441 Practical Optometry I** P 4  
(514) A. 3 cl., 1 3-hr. lab.  
Prereq.: *Optom.* 2nd yr. standing, *Physica* 112, and *Math.* 150.

Theory and techniques of keratometry, skiametry, objective and subjective tests of refraction, accommodation, and functions of the extra-ocular muscles. *Hebbard.*

- 442 Practical Optometry II** P 4  
(515) W. 3 cl., 1 3-hr. lab.  
Prereq.: 441.

Correlation and analysis of data. Systematic determination of the etiology of anomalies and sources of visual discomfort and inefficiency. Corrective procedures and prescription writing. *Hebbard.*

- 443 Practical Optometry III** P 4  
(516) Sp. 3 cl., 1 3-hr. lab.  
Prereq.: 442.

Ophthalmoscopy and examination of the external parts and the media of the eye. Case histories. Techniques of investigating special types of anomalies. Corrective procedures. *Hebbard.*

- 641 Clinical Practice in Optometry I** P 5  
(541) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 443.

Clinical practice in examining eyes and carrying out corrective procedures. The conference periods are devoted to the discussion of problems encountered during the clinic periods. *Hebbard, Wild, Kerr, Mote.*

- 642 Clinical Practice in Optometry II** P 5  
(542) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 641.

Continuation of 641.

- 643 Clinical Practice in Optometry III** P 5  
(543) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 642.

Continuation of 642.

- 651 Subnormal Vision** P 4  
Sp. 3 cl., 1 2-hr. lab.  
Prereq.: *Optom.* 3rd yr. standing and 443.

Etiology of subnormal vision; measurement of loss of central acuity and other visual functions; design of optical devices for the aid of the partially sighted. *Esckridge.*

- 652 Aniseikonia** P 4  
W. 3 cl., 1 2-hr. lab.  
Prereq.: *Optom.* 3rd yr. standing and 443.

Clinical methods of testing and measuring aniseikonia; etiology of aniseikonia; effects associated with uncorrected aniseikonia; design of lenses for aniseikonia. *Fugate, Albright.*

- 653 Contact Lenses** P 4  
A. 3 cl., 1 2-hr. lab.  
Prereq.: *Optom.* 3rd yr. standing and 443.

Theory and practice in the use of contact lenses; artificial eyes; ptosis crutches and other prosthetic devices. *Bailey.*

- 660 Ophthalmic Pathology** P 5  
Sp. 3 cl., 6 lab. hrs.  
Prereq.: *Optom.* 2nd yr. standing, *Path.* 550.

Gross and microscopic pathology of the eye, including diseases of the conjunctiva, orbital cavity and pertinent pathology of the central nervous system. *Hill.*

- 701 Applied Pathology of the Eye I** P 4  
(555) Sp. 3 cl., 1 2-hr. lab.  
Prereq.: 443 and *Anat.* 608.

Advanced ophthalmoscopy, slit lamp microscopy, tonometry, and other methods of detecting pathological conditions. Systematic study of ocular diseases; artificial eyes and other prosthetic devices. *Hill.*

- 702 Applied Pathology of the Eye II** P 4  
(556) A. 3 cl., 1 2-hr. lab.  
Prereq.: 701.

Motor disturbances of eyes, paralytic strabismus, peripheral fixation anomalies, nystagmus, ptosis, ptosis crutches, anomalous accommodative and pupillary responses. *Esckridge.*

- 703 Applied Pathology of the Eye III** P 4  
(557) W. 3 cl., 1 2-hr. lab.  
Prereq.: 702.

Visual fields; scotometry; subnormal central vision involving pathology; telescopic lenses and aids for subnormal vision; theory and practice in the use of contact lenses. *Schoessler.*

- 721 Optometric Economics and Jurisprudence** P 3  
(561) W. 3 cl.  
Prereq.: 643.

Historical background; legal status; practice building techniques; office accounting and general practice management; representative organization in optometry; professional ethics. *Hebbard.*

- 722 Civic and National Problems in Eye Care** P 3  
(563) Sp. 3 cl.  
Prereq.: 721.

Number, distribution, supply interrelationships, and roles of the various ophthalmic groups; prevalence of visual anomalies; governmental and public-health aspects of vision care. *Hebbard.*

- 741 Advanced Clinical Practice in Optometry I** P 5  
(601) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 643.

Advanced clinical practice. The conference periods are devoted to the discussion of problems and cases encountered during the clinic periods. *Wild, Esckridge.*

- 742 Advanced Clinical Practice in Optometry II** P 5  
(602) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: *Optom.* 4th yr. standing and 741.

Continuation of 741.



**743 Advanced Clinical Practice in Optometry III P 5**

(603) A, W, Sp. 2 cl., 3 3-hr. lab.

Prereq.: Optom. 4th yr. standing and 742.

Continuation of 742.

**745 Special Clinical Practice P 3-5**

(545) A, W, Sp. 1 cl., 2-4 3-hr. lab.

Prereq.: 443, concur. 641 and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Clinical experience in specialized phases of optometric practice, (a) subnormal vision, (b) aniseikonia, (c) vision in schools and industry, (d) orthoptics, (e) contact lenses. Hebbard, Wild, Eskridge.

**Otolaryngology**

Office: N-820 University Hospital, 410 West 10th Avenue. PROFESSOR †SAUNDERS (Chairman); ASSOCIATE PROFESSORS †BIRCK, †MELNICK, and MILLER; ASSISTANT PROFESSORS ARTHUR, DEISHLEY, GERSTEN, KRECH, LOWERY, †PAPARELLA, and SMITH; INSTRUCTORS H. LOWERY, †NILO, WAG-ENBRENNER, and WEHR.

**The Comprehensive Evaluation of the Patient**

(See Med. 601, 602, 603.)

[Offered in cooperation with departments of Med., Ob. and Gyn., Ophthal., Ped., Phy. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

(Introductory consideration with other disciplines of the diagnosis and treatment of symptom complexes involving the ear, nose and throat; lectures, demonstrations and films are used.)

**751 Special Group Studies in Otolaryngology P 1**

1 month, offered Oct. and Feb.

Prereq.: Med. 4th yr. standing.

Clinical work in basic otolaryngology as encountered in general and other medical specialty practice.

**793 Individual Studies in Otolaryngology P G 2-5**

Su, A, W, Sp.

Prereq.: Med. 4th yr. standing or permission of instructor.

Student may pursue a minor investigation in some otolaryngological area of his choice. Graduate Staff.

**794 Advanced Studies in Otolaryngology P 18**

3 months; offered July, Nov. and Mar.

Prereq.: Med. 3rd or 4th yr. standing.

Library, clinical, or laboratory problems in otolaryngology. Paparella, Saunders.

**799 Residency in Otolaryngology P 18**

Su, A, W, Sp.

12 months, full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through clinical inpatient and outpatient services, consultative activities, supervisory and teaching responsibilities in otolaryngology; conferences and rounds.

**820 Otolaryngology-Surgical Aspects of the Anatomy of the Head and Neck G 6**

A. and W. 3 cl., 2 qtrs.

Prereq.: Permission of instructor.

Dissection of the head and neck with lectures and demonstrations of anatomical aspects especially of surgical interest to the otolaryngologist. Birck.

**850 Seminar in Otolaryngology**

A, W, Sp. 2 qtrs.

Prereq.: Permission of instructor.

.01 Otopathology. W, Sp. 2 cl. Paparella. G 2

.02 General Otolaryngological Pathology. G 2  
Arr. with instructor. 2 cl. Saunders..03 Bioacoustics. W, Sp. Biennial 2 cl. G 4  
Melnick..04 Audiological Considerations in G 4  
Otolaryngology. W, Sp. Biennial 2 cl.  
Nilo..05 Current Research in Otolaryngology G 1  
Seminar. Lowrey.**999 Research in Otolaryngology G Arr.**

Su, A, W, Sp.

Research for thesis purposes only.

**Pathology**

Office: M-112 Starling Loving Hall, 320 West 10th Avenue. PROFESSORS †von HAAM (Chairman), COLE, DAVIDSON, †FRAJOLA, †LISS, †MACPHERSON, and †NEWTON; ASSOCIATE PROFESSORS †KOLAS, †OLD, and †STEVENSON; ASSISTANT PROFESSORS †ALLEN, †BABA, BENHAM, †CELEN, †CUPPAGE, DAVIS, DIEDERICH, †GREIDER, †GRUEMER, HURD, JOHNSMANN, LEWIS, LOWY, McMILLAN, MILLER, MURTHY, †REINER, SAMUELS, SARMINA, SMITH, THORNE, and van der HOEVEN.

**501 Medical Technology U 3**

(630) Su. 3 cl.

Prereq.: Med. Tech. 4th yr. standing.

Hematology, urine analysis, clinical microscopy; blood bank, blood groups, blood types, and blood transfusions. Stevenson.

**502 Medical Technology U 3**

(631) A. 3 cl.

Prereq.: Med. Tech. 4th yr. standing.

Clinical microbiology, serology, parasitology, and mycology. Macpherson and Staff.

**503 Medical Technology****U 3**(633) *W. 3 cl.**Prereq.: Med. Tech. 4th yr. standing.*

Preparation of tissue for histologic examination by frozen and permanent sections; special stain techniques; immunohematology. *Macpherson.*

**504 Medical Technology****U 3**(632) *Sp. 3 cl.**Prereq.: Med. Tech. 4th yr. standing.*

Clinical blood and tissue chemistry, and modes of investigating diseases by biochemical methods. *Gruemer and Staff.*

**505 Fundamentals of Disease****U 3**(645) *A. 3 cl.**Prereq.: Med. Tech. 4th yr. standing.*

The nature of disease, mechanisms involved in the disease process, and use of the laboratory in defining the mechanisms of disease. *Macpherson and Staff.*

**506 Medical Technology****U 2**(636) *W. 2 cl.**Prereq.: Med. Tech. 4th yr. standing.*

The use and interpretation of laboratory tests in medicine. *Macpherson, Thorne, and Staff.*

**507 Medical Technology****U 2**(637) *Sp. 2 cl.**Prereq.: Med. Tech. 4th yr. standing.*

The use and interpretation of laboratory tests in medicine. *Thorne.*

**550 Pathology****U 5**(650) *A. 3 cl., 6 lab. hrs.**Prereq.: Optom. 4th yr. standing, Chem. 231, 232; Physiol. 516, 517, Anat. 607, 608.*

General pathology including the etiology of infectious disease, disturbances of nutrition, inflammation, and neoplasia, with special reference to the influence upon ophthalmic pathology; selected chapters of Special Pathology; histologic and gross demonstrations.

**603 Clinical Pathology****P G 6***W. 4 cl., 2 2-hr. lab.**Prereq.: Med. 2nd. yr. standing. Grad.: Permission of instructor.*

A study of the changes in the blood, urine, feces, sputum, spinal fluid and gastric contents brought about by disease. *Macpherson, Stevenson.*

**624 General Pathology****P G 7***A. 5 cl., 3 2-hr. lab.**Prereq.: Med. 2nd. yr. standing. Grad.: Permission of instructor.*

Degenerative, circulatory, inflammatory, and neoplastic lesions; reactions to injury; pathology of infectious diseases.

**625 Special Pathology****P G 4***W. 2 cl., 2 2-hr. lab.**Prereq.: 624.*

The pathology of the heart and blood vessels; the respiratory tract; the bone marrow, spleen and lymph nodes; the gastrointestinal tract; the liver, biliary tract, and pancreas.

**626 Special Pathology****P G 4***Sp. 2 cl., 2 2-hr. lab.**Prereq.: 624.*

Pathology of the urinary tract; the male and female genital organs; the endocrine glands, the central nervous system; the bones, muscles, and skin.

**655 General Pathology****P 5***Sp. 3 cl., 2 3-hr. lab.**Prereq.: Dent. 2nd yr. standing.*

General pathology, including the etiology of diseases, disturbances of nutrition, inflammation, regeneration, and tumors.

**792 Special Lectures in Pathology****P G 3***Su, A, W, Sp. 3 cl.**Prereq.: Grad. standing. Med. 3rd or 4th yr. standing.**Repeatable to a maximum of 24 cr. hrs.*

Lectures in special fields of pathology. One subdivision will be offered each quarter.

- .01 Pathology of the blood and bone marrow with emphasis on the laboratory diagnosis of anemia. *Stevenson.*
- .02 The biochemistry of diseases of errors of metabolism with special emphasis on abnormalities in protein metabolism. *Gruemer.*
- .03 Special problems in surgical pathology including frozen section techniques and the use of the cryostat. *Old.*
- .04 Selected lectures on neuropathology. *Liss.*
- .05 Diagnostic laboratory methods in immunohematology. *Macpherson.*
- .06 Diagnostic exfoliative cytology including aspiration biopsy. *von Haam.*
- .07 The pathology of neoplasms of children. *Newton.*
- .08 Cellular pathology with emphasis on ultra-microscopic changes in cell injury. *Cuppage.*

**793 Individual Studies in Pathology***1, 2, 3, or 4 months.**Su, A, W, Sp.**Prereq.: Med. 3rd yr. standing; grad., permission of instructor.*

- .01 Pathologic anatomy. 3 months, **P G 18**  
offered all months. *Cuppage.*
- .02 Principles of clinical cytology. 2 **P G 12**  
months, offered Dec., Feb., Apr. *Ceelen.*
- .03 Serum enzymes for diagnosis of **P G 18**  
disease. 3 months, offered Mar. *Gruemer.*
- .04 Clinical chemistry. 3 months, offered **P G 18**  
Mar. *Gruemer.*
- .05 Neuropathology. 3 months, offered **P G 18**  
Oct., Jan. *Liss.*
- .06 Immunohematology. 1 month, offered **P G 6**  
Sept., Mar., Apr., May. *Macpherson.*
- .07 Clinical microbiology. 4 months, **P G 24**  
offered Nov. *Macpherson.*
- .08 Pediatric pathology. 2 months, **P G 12**  
offered Sept., Nov., Jan., Apr. *Newton.*
- .09 Surgical pathology I. 4 months, **P G 24**  
offered July, Nov. *Old.*
- .10 Surgical pathology II. 2 months, **P G 12**  
offered July, Sept., Jan., Apr. *Old.*
- .11 Special pulmonary pathology. 2 **P G 12**  
months, offered July.
- .12 Ultrastructure of cells in disease. 2 **P G 12**  
months, offered Nov.
- .13 Laboratory medicine—the **P G 12**  
erythrocyte. 2 months, offered Sept. *Stevenson.*



- .14 Problems in experimental pathology. P 24  
4 months, offered Nov. von Haam.
- .15 Problems in pathology and clinical pathology. G 3-5
- 798 Internship in Pathology P 18**  
Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Intern, University Hospital.  
Repeatable to a maximum of 72 cr. hrs.
- Rotation through the Divisions of Pathologic Anatomy and Surgical Pathology; primary responsibility for pathology service; work rounds and staff conferences.
- 799 Residency in Pathology P 18**  
Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Resident, University Hospital.  
Repeatable to a maximum of 288 cr. hrs.
- Rotation through all Pathology and Clinical Pathology subspecialties; certain teaching responsibilities, conferences and seminars.
- 850 Seminar in Pathology and Clinical Pathology G 2**  
(800) Su, A, W, Sp. 1 2-hr. cl.  
Prereq.: Path. grad. standing.
- Discussion of pertinent literature, presentation and discussion of research work, and demonstration of fresh specimens and slides.
- 999 Research in Pathology G Arr.**  
(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.

## Pediatrics

Offices: Children's Hospital, 561 South 17th Street.  
N-118, University Hospital, 410 West 10th Avenue.

PROFESSORS †GRAHAM (Chairman), †AMBUEL, BAXTER (Emeritus), †CRAMBLETT, †HOSIER, †NEWTON, SEYMOUR, and †SHAFFER; ASSOCIATE PROFESSORS M. AINSWORTH, ANDERSON, EDELMAN, FALKENSTEIN, †GIBSON, †HAMPARIAN, HOSTERMAN, HOWARD, KASMERSEY, †KONTRAS, McCCLAVE, †MEITES, MISSILDINE, OWEN, †SOTOS, SYLVESTER, and TURNER; ASSISTANT PROFESSORS †ADDANKI, APLIN, BALDOCK, BASS, BATTERSON, DONALDSON, EATON, EBERLY, I. ERTTEL, P. ERTTEL, FERNALD, FRYE, GOVE, HALES, HAYNES, LEVITIN, MARKS, McCALL, MILLER, NELSEN, †REINER, RIEPENHOFF, ROBBINS, †ROBERTSON, RUEGER, SAMUELS, SAUERS, SCHEIP, and SIVON.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603)

[Offered in cooperation with Departments of Med., Ob. and Gyn., Ophthalmol., Otol., Phys. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

[Multidiscipline approach to pediatric patients exhibiting normal growth and development, and deviation from normal; physical diagnosis of infants and children.]

- 715 Clinical Pediatrics P 12, 24**  
2 months, offered July, Sept. Nov., Jan., Mar., or May.

Prereq.: Med. 3rd yr. standing.

Didactic and clinical instruction in Pediatrics; presentation of all of the medical, surgical and psychiatric aspects of diseases of children.

### 793 Individual Studies in Pediatrics

Su, A, W, Sp. 1, 2, 3 or 4 months, offered all months, except June.

Prereq.: For .01, .02, .03, .04, .05, .06, .07, .08, .09, .10, .11, .12 and .14: Med. 4th yr. standing and permission of instructor. For .13: 3rd or 4th yr. standing.

- .01 Advanced Pediatrics. 2, 3, or 4 P 12, 18, 24  
months G 1-5
- .02 Genetics. 1, 2, or 3 months P 6, 12, 18  
G 1-5
- .03 Infectious Diseases. 2, 3, or 4 P 12, 18, 24  
months G 1-5
- .04 Pediatric Cardiology. 1, 2, 3 P 6, 12, 18  
months G 1-5
- .05 Development Diagnosis and P 12, 18, 24  
Infant Neurology. 2, 3, or 4 G 1-5  
months
- .06 Blood Diseases of Infants and P-6  
Children. 1 month G 1-5
- .07 Neonatal Research. 2, 3, or 4 P 12, 18, 24  
months
- .08 Adolescent Medicine. 1, 2, or P 6, 12, 18  
3 months G 1-5
- .09 Pediatric Endocrinology. 2, 3, P 12, 18, 24  
or 4 months G 1-5
- .10 Pulmonary Diseases. 2, 3, or P 12, 18, 24  
4 months G 1-5
- .11 Handicapped Child. 1, 2, or 3 P 6, 12, 18  
months G 1-5
- .12 Pediatric Practice. 1 month P 6
- .13 Renal and Electrolyte Disorders. 2, 3, or 4 months P 12, 18, 24  
G 1-5
- .14 Nutrition Studies 2, 3, or 4 P 12, 18, 24  
months

### 794 Group Studies in Pediatrics

Su, A, W, Sp.

1, 2, 3, or 4 mos.

Prereq.: For .01 and .07-715. For .02, .03, .04, .05, .06, .08, .09-3rd or 4th yr. standing. For .10 and .11-approval of chairman.

- .01 Advanced Pediatric Problems. P 6, 12, 18  
1, 2, or 3 months, offered all months except June. Graham.
- .02 Ambulatory Pediatrics. 1, P 6, 12, 18, 24  
2, 3 or 4 months, offered all months except June. Ambuel.
- .03 In-patient Pediatrics. 1, 2, P 6, 12, 18, 24  
3, or 4 months, offered all months except June. Graham & Staff.
- .04 Pediatric Cardiology. 1 month, offered P 6  
all months. Hosier.
- .05 Pediatric Endocrinology and P 6, 12, 18, 24  
Metabolism. 1, 2, 3, or 4 months, offered all months. Sotos.
- .06 Pediatric Hematology. 1 month, P 6  
offered all months. Newton.
- .07 Adolescent Medicine. 1, 2, P 6, 12, 18, 24  
3, or 4 months, offered all months. Shaffer.
- .08 Rheumatology and Handi- P 6, 12, 18, 24  
capped Child. 1, 2, 3, or 4 months, offered all months. Gibson.
- .09 Pulmonary Diseases of Infants and P 6  
Children. 1 month, offered all months. Young.
- .10 Child Development. 2, 3, or P 12, 18, 24  
4 months, offered all months.
- .11 Diseases of the Newborn. 1 month, P 6  
offered all months.

- 798 Internship in Pediatrics** P 18  
*Su, A, W, Sp.*  
*12 months full time, beginning July 1.*  
*Prereq.: Appointment as Intern in Department of Ped.*  
*Repeatable to a maximum of 72 cr. hrs.*

Eight months at Children's Hospital, four in medical pediatrics, two in pediatric surgery, two in pathology; four months at University Hospital, two emphasizing communicable diseases, two emphasizing the newborn infant.

- 799 Residency in Pediatrics** P 18  
*Su, A, W, Sp.*  
*12 months full time, beginning July 1.*  
*Prereq.: Appointment as Resident, Children's and University Hospitals.*  
*Repeatable to a maximum of 216 cr. hrs.*

Supervised care of hospitalized and ambulatory pediatric patients at Children's Hospital and University Hospital; certain teaching responsibilities; conferences and rounds.

- 830 Pediatrics for Dental Graduates** G 3  
*(716) 2 months, offered Nov. and Mar.*  
*Prereq.: Grad. standing.*

General clinical pediatrics presented by lectures, clinical conferences, case presentations, seminar, as a part of the training program for developing pedodontists.

- 850 Seminar in Pediatrics** G 3-5  
*(900) Su, A, W, Sp.*  
*Prereq.: Permission of dept. chairman.*

- 999 Research in Pediatrics** G Arr.  
*(950) Su, A, W, Sp.*  
 Research for thesis purposes only.

## Petroleum Engineering

Office: 335 Chemical Engineering Building, 140 West 19th Avenue.  
 ASSOCIATE PROFESSOR SLIDER.

- 442 Petroleum Geophysical and Drilling Methods** U 3  
*(602) W. 3 cl.*  
*Prereq.: Physics 233 or 113 and Math. (537) or 153 or equiv.*

The engineering aspects of the geophysical exploration and drilling for gas and oil. Emphasis is placed on rotary drilling. *Slider.*

- 542 Drilling Fluids** U G 3  
*(719) W. 1 cl., 2 3-hr. lab.*  
*Prereq.: 442.*

The significance and control of drilling fluid qualities. Commercial drilling fluids are analyzed in the laboratory and the control of their properties is demonstrated. *Slider.*

- 543 Physical Analysis of Petroleum Reservoirs** U G 2  
*(723) W. 1 cl., 1 4-hr. lab.*  
*Prereq.: 442 or permission of instructor.*

A quantitative study of the physical nature of a petroleum reservoir. Includes laboratory analysis of porosity, permeability, saturation, capillary pressure, and multi-phase characteristics of reservoir rocks. *Slider.*

- 544 Oil and Gas Well Completions** U G 3  
*(737) Sp. 3 cl.*  
*Prereq.: 542, 642.*

Design of well completion methods emphasizing reservoir damage and evaluation of reservoir conditions, casing design, cementing, logging, acidizing, and hydraulic fracturing. *Slider.*

- 641 Reservoir Engineering—Hydrocarbon Phase Behavior** U G 3  
*(735) A. 2 cl., 1 2-hr. lab.*  
*Prereq.: Chem. E. 609.*

Quantitative study of the physical nature and phase behavior of subsurface reservoir fluids. *Slider.*

- 642 Reservoir Engineering—Fluid Flow** U G 3  
*(736) A. 2 cl., 1 2-hr. lab.*  
*Prereq.: 641.*

Quantitative study of reservoir fluid flow, including analysis of material balance, producing mechanisms, and well performance. *Slider.*

- 743 Petroleum Investigations** U G 3-10  
*(750) A, W, Sp. Library, conf., and lab. work.*  
*Prereq.: 642.*

.01 Engineering problems of petroleum and natural gas exploration, production and transportation. *Slider.*

.02 Design or planning of petroleum field development.

- 796 Advanced Petroleum Engineering Technology** U G 2  
*(765) Sp. 2 cl.*  
*Prereq.: 642 and 543.*

Library research and seminar discussions of the most recent technical developments in petroleum engineering. *Slider.*

- 842 Petroleum Production and Oil Field Development and Operational Problems** G 3-10  
*(802) A, W, Sp.*  
*Prereq.: Permission of instructor.*

Examination and testing of petroleum and petroleum bearing rocks; economic interpretation and application to problems of primary and secondary recovery.

- 999 Research in Petroleum Engineering** G Arr.  
*(950) A, W, Sp.*  
 Research for thesis or dissertation purposes only.



## Pharmacology

Office: 214 Hamilton Hall, 1645 Neil Avenue.

PROFESSORS †MARKS (Chairman) and †TRUITT; ASSOCIATE PROFESSORS †GARDIER, †GOLDMAN, and †HOLLANDER; ASSISTANT PROFESSORS †BESCH, †DAGIRMANJIAN, †DANELLIS, †DUTTA, ENGELMAN, and †LEVEQUE; INSTRUCTOR COURI.

### 600 General Pharmacology U G 3

A. 2 cl., 1 3-hr. lab.

Prereq.: Physiol. Chem. 611, Physiol. 601 or permission of instructor.

Introduction to the general principles of pharmacology, drug classification, and the sites and mechanisms of drug action. *Leveque*.

### 601 Laboratory Methods in Pharmacology U G 3

W. 1 cl., 2 3-hr. lab.

Prereq.: 600.

Biological, chemical, electronic and mathematical techniques commonly employed in a pharmacology laboratory. *Gardier*.

### 610 Toxicology and Drug Identification U G 3

W. 1 cl., 2 3-hr. lab.

Prereq.: 600.

The biochemical basis for the action of poisons and methods for the identification of drugs and their metabolites. *Pasananti*.

### 700 Medical and Mammalian Pharmacology P G 4

W. 4 cl.

Prereq.: 600 or permission of instructor.

General principles of pharmacology. Drugs used for diagnosis, prevention or eradication of the cause of disease, including endocrine products and chemotherapeutic agents.

### 701 Medical and Mammalian Pharmacology P G 5

Sp. 4 cl., 3 lab. hrs.

Prereq.: 700.

Continuation of 700.

### 720 Autonomic Pharmacology P G 3-15

(820) A. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Comprehensive review of drugs that mimic or affect the actions of autonomic neurones with emphasis on biochemical and cellular analysis of autonomic drug action. *Marks and Dagirmanjian*.

### 721 Cardiovascular Pharmacology P G 3-15

(821) W. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Modern concepts of the action of drugs on the heart and circulation. *Leveque and Dutta*.

### 722 Neuroendocrine Pharmacology P G 3-15

(822) Sp. 2 cl. hr., lab. arr.

Prereq.: 600 or 701.

Levels of interaction of the nervous and endocrine systems. *Goldman*.

### 723 Pharmacology Related to Anesthesia P G 3-15

(823) A. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

The pharmacodynamics of anesthetic agents and of other drugs which modify the state of surgical anesthesia. *Gardier*.

### 745 Bioelectric Potentials P G 5-15

(845) W. 5 cl., lab. arr.

Prereq.: Physiol. 601, 602 or equiv. or permission of instructor.

Methods of recording transmembrane potentials from cells; interpretation of cell potentials; effects of drugs on transmembrane potentials. *Hollander*.

### 751† Steroid Pharmacology P G 3-15

(851) Sp. 2 cl. hr., lab. arr.

Prereq.: 701 or permission of instructor.

Pharmacology of steroids which affect special tissues, organs, or systems. *Besch*.

### 752 Drug Metabolism P G 3

A. 2 cl. arr.

Prereq.: 600 or 701 or permission of instructor.

Discussions of mechanisms of biotransformation of drugs by enzymes, pharmacologic characteristics of these systems, and techniques for the study of drug metabolism.

### 770 Clinical Pharmacology and Therapeutics P 3

May.

Prereq.: Med. 4th yr. standing, concur. Med. 770.

Application of clinical pharmacologic principles to the treatment of disease states. *Engelman*.

### 793 Individual Studies in Pharmacology P 6, 12, 18

1, 2, 3, months, offered all months except June.

Su, A, W, Sp.

Prereq.: Permission of instructor.

Cardiac arrhythmias; digitalis pharmacodynamics; neuropharmacology; endocrine pharmacology; advanced cardiovascular pharmacology; autonomic pharmacology. *Marks*.

### 850 Seminar in Pharmacology G 2

(750) Su, A, W, Sp.

Prereq.: Permission of instructor.

Conferences on selected topics in pharmacology.

### 999 Research in Pharmacology G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Pharmacy

Office: 217 College of Pharmacy, 500 W. 12th Avenue.  
 PROFESSORS †PARKS (Dean), †BEAL, †BOPE,  
 †GUTH, HARRIS (Emeritus), †MALSPEIS, †NELSON,  
 and †TYE; ASSOCIATE PROFESSORS †BURKMAN,  
 †DOSKOTCH, †LAPIDUS, †LATIOLAIS, †OBER, †SAL-  
 ISBURY, †SOKOLOSKI, and WOLF; ASSISTANT PRO-  
 FESSORS †KNAPP, †NOTARI, †OLSON, †PATIL, and  
 WILLIAMS (Emeritus); INSTRUCTOR BUERKI; CLIN-  
 ICAL INSTRUCTOR HOLLAND.

- 401 Pharmaceutics I** P 5  
*W. 4 cl., 1 2-hr. lab.*  
*Prereq.: Chem. 231 or equiv.*

The application of physical chemical principles to phar-  
 maceutics: a fundamental introduction to solid and liq-  
 uid dosage forms. *Malspeis, Notari, Sokoloski.*

- 402 Pharmaceutics II** P 5  
*Sp. 3 cl., 1 3-hr. lab.*  
*Prereq.: 401.*

The application of physical chemical principles to phar-  
 maceutics; properties of solutions of pharmaceutical and  
 medicinal compounds. *Malspeis, Notari, Sokoloski.*

- 430 Inorganic Pharmaceutical Chemistry** P 3  
*(530) W. 2 cl., 1 3-hr. lab.*  
*Prereq.: Chem. 123 or equiv.*

A systematic study of the elements, their compounds, and  
 preparations containing these substances that have phar-  
 maceutical application.

- 431 Inorganic Pharmaceutical Chemistry** P 3  
*(531) Sp. 3 cl.*  
*Prereq.: 430.*  
 A continuation of 430.

- 435 Bio-Pharmacy** P 5  
*(614) Su, Sp. 4 cl., 1 3-hr. lab.*  
*Prereq.: Chem. 232 or equiv.*  
 A study of pharmaceutical agents important in biochemi-  
 cal processes. *Bope.*

- 450 Pharmacognosy** P 5  
*(521) Su, A. 4 cl., 1 3-hr. lab.*  
*Prereq.: Chem. 231 or equiv.*

A study of the history, source, identification, constitu-  
 ents, and medicinal preparations of some of the more  
 important drugs of biological origin. *Beal, Doskotch.*

- 451 Pharmacognosy** P 4  
*(522) W. 4 cl.*  
*Prereq.: Chem. 231 or equiv.*  
 A continuation of 450. *Beal, Doskotch.*

- 470 Pharmacology for Nurses** P 4  
*Sp. 4 cl.*  
*Prereq.: Chem. 102 or 122, Physiol. 312.*  
*Open only to students registered in School of Nursing.*

A survey of the important drugs used in medicine and a  
 consideration of their therapeutic applications. Some  
 time is also devoted to reading prescriptions. *Nelson,*  
*Tye, Wolf.*

- 490 Pharmacy Survey** P 1  
*(550) A. 1 cl.*

Lectures and discussions to acquaint the student with the  
 profession of pharmacy and the many fields of interest  
 and specialization within the profession. *Parks.*

- 491 Pharmacy Survey** P 1  
*(551) Sp. 1 cl.*  
 A continuation of 490. *Parks.*

- 503 Pharmaceutics III** P 5  
*A. 3 cl., 1 3-hr. lab.*  
*Prereq.: 402.*

The application of physical chemical principles to phar-  
 maceutics; solubility and mixed solvents, complexation,  
 redox systems in pharmacy. *Sokoloski, Malspeis, Notari.*

- 504 Pharmaceutics IV** P 5  
*W. 3 cl., 2 2-hr. lab.*  
*Prereq.: 503.*

The application of physical chemical principles to phar-  
 maceutics: heterogeneous systems, emulsions, suspensions,  
 gels and magmas. *Sokoloski, Malspeis, Notari.*

- 505 Pharmaceutics V** P 5  
*Sp. 3 cl., 2 2-hr. lab.*  
*Prereq.: 504.*

The formulation of compounded prescriptions and other  
 dosage forms, with emphasis on drug availability, physio-  
 logical requirements, incompatibility, prediction of sta-  
 bility and clinical effectiveness. *Notari, Malspeis, Sokoloski.*

- 507 Manufacturing Pharmacy** P 3  
*(621) A. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*

A course dealing with the formulation and mechanical  
 fabrication of a wide variety of pharmaceutical dosage  
 forms. *Guth.*

- 508 Manufacturing Pharmacy** P 3  
*(622) W. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*  
 A continuation of 507. *Guth.*

- 509 Manufacturing Pharmacy** P 3  
*(623) Sp. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*  
 A continuation of 507. *Guth.*

- 511 History of Pharmacy** P 2  
*(514) A. 2 cl.*  
*Prereq.: 491.*

A course designed to give the pharmacy student a deeper  
 appreciation of the background of pharmacy and its de-  
 velopment through the years. *Buerki, Knapp.*

- 515 Hospital Pharmacy** P 3  
*(643) A, W, Sp. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*  
*Repeatable to a maximum of 9 cr. hrs.*

Introduction to and clinical experience in hospital phar-  
 macy under the supervision of a registered pharmacist  
 in University Hospital or Grant Hospital. *Latiolais, Hol-  
 land.*



**520 Drug Marketing P 3**

(509) A. 3 cl.

Prereq.: Econ. 201.

A study of the activities involved in the distribution of drug products from the producer to the consumer. Knapp.

**524 Pharmacy Management P 3**

(512) W. 2 cl., 1 2-hr. lab.

Prereq.: 520.

A study of fundamental problems associated with planning, organizing, and controlling a retail pharmacy emphasizing case problems to illustrate the practical application of management principles. Knapp.

**525 Pharmacy Management P 4**

(513) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 524.

A continuation of 524. Knapp.

**534 Organic Pharmaceutical Chemistry P 4**

(604) Su (1st term), A. 4 cl.

Prereq.: Chem. 232 or equiv.

A study of the chemistry of organic pharmaceutical and medicinal agents. LaPidus.

**535 Organic Pharmaceutical Chemistry P 4**

(605) Su (2nd term), W. 4 cl.

Prereq.: 534 or equiv.

A continuation of 534. LaPidus.

**553 Microscopical Pharmacognosy P 3**

(717) Sp. 3 2-hr. labs.

Prereq.: 451 or equiv.

A course embodying the principles of the microscope and the application of microchemical and specialized techniques in the detection, separation, and identification of drugs. Beal, Doskotch.

**570 Pharmacology P 5**

(607) A. 5 cl.

Prereq.: Physiol. 312 or equiv. or permission of instructor.

Fundamental materia medica including a discussion of the more commonly used drugs and preparations, their pharmacology and therapeutic applications. Nelson, Burkman, Tye, Wolf.

**577 Biological Products P 3**

(602) W. 3 cl.

Prereq.: Microbiol. 607.

U.S.P. standards and legal requirements governing manufacture, standardization, storage and distribution of toxins, antitoxins, serums, and vaccines. Tye, Nelson, Wolf.

**579 The Pharmacist and Public Health P 3**

(600) Sp. 3 cl.

Prereq.: Physiol. 312 or equiv., Microbiol. 607.

An introduction to public health stressing the pharmacist's role in the maintenance of the health of the community. Tye, Wolf.

**606 Pharmaceutics VI P 5**

A. 3 cl., 1 3-hr. lab.

Prereq.: 505.

A continuation of 505 with emphasis on the physical chemical properties of drugs and dosage forms and the nature and intensity of biological action. Notari, Mal-speis, Sokolanski.

**609 The Pharmacy of Metabolic Agents P 3**

(647) Sp. 3 cl.

Prereq.: Senior standing.

A study of the pharmacy of medicinal products used in the treatment of deficiency diseases, malnutrition, and convalescence. Guth.

**613 New and Non-Official Drugs P 3**

Sp. 3 cl.

Prereq.: Senior standing.

The pharmacy of the more commonly used new and non-official medicinals. Guth.

**615 Sterile Products P G 3**

(715) W. 2 cl., 1 3-hr. lab.

Prereq.: 504 or equiv.

A course dealing with the formulation, preparation, and testing of sterile products including injections, bulk solutions, and nasal and ophthalmic preparations. Latio-lais, Guth.

**625 Pharmaceutical Jurisprudence P 3**

(650) Sp. 3 cl.

Prereq. or concur.: 525.

A study of the laws and regulations relating to the practice of pharmacy with emphasis on cases and court decisions illustrating the pharmacist's responsibilities. Salisbury, Knapp.

**632 Organic Pharmaceutical Chemistry P 3**

Sp. 3 cl.

Prereq.: 535 or equiv.

A continuation of 535. LaPidus.

**635 Drug Assay P 4**

(610) A. 2 cl., 2 3-hr. lab.

Prereq.: 535 or equiv.

The qualitative and quantitative examination of drugs and drug formulations. Olson.

**636 Drug Assay P 3**

(711) W. 2 cl., 1 3-hr. lab.

Prereq.: 635 or equiv.

A continuation of 635. Olson.

**671 Pharmacology P G 5**

(708) W. 4 cl., 1 3-hr. lab.

Prereq.: 570 or equiv.

Fundamental Materia Medica including a discussion of the more commonly used drugs and preparations along with their pharmacological and therapeutic applications. Nelson, Tye, Wolf, Burkman, Patil.

**672 Pharmacology P G 5**

(709) Sp. 4 cl., 1 3-hr. lab.

Prereq.: 671 or equiv.

A continuation of 671. Nelson, Tye, Wolf, Burkman, Patil.

**675 Glandular Products P 3**

(601) Su, A. 3 cl.

*Prereq.: 672 or permission of instructor.*

Preparations, properties, standardization, and uses of medicinal products obtained from glands and other organs of animals, and their related compounds. *Tye, Nelson, Wolf.*

**677 Toxicology P 3**

(619) A. 3 cl.

*Prereq.: 672 or permission of instructor.*

Fundamentals of toxicology, including a discussion of the general classes of poisons, their physiological action, methods of treatment and detection with special emphasis on doses. *Nelson, Tye, Wolf, Burkman.*

**680 Pharmacology of Newer Products P 3**

(714) W. 3 cl.

*Prereq.: 672.*

A course covering the pharmacology of the more recent drugs and preparations and their therapeutic application. *Nelson, Tye, Wolf.*

**690 Professional Orientation P 1**

(615) Sp. 1 cl.

*Prereq.: Senior standing.*

Discussions to focus on contemporary problems in pharmacy and to stimulate development of professional awareness and responsibilities. *Parks.*

**693 Individual Studies in the Pharmaceutical Sciences P 1-3**

Su, A, W, Sp. Cl., lab. arr.

*Prereq.: Junior standing, cumulative point hour ratio of 2.5, and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Laboratory and library work designed to give the qualified student an opportunity to complete an original investigation or pursue an interest in a special problem.

**695 Seminar P 2**

(645) A, W, Sp. 2 cl.

*Prereq.: Senior standing or permission of instructor.**Repeatable to a maximum of 6 cr. hrs.*

A course dealing with the problems arising out of professional relations of the pharmacist with the physician, medical internes, nurses, laboratory technicians, and the laity.

**715 Hospital Pharmacy and the Hospital Organization P G 3**

(725) A. 3 cl.

*Prereq.: Senior standing, 515 or equiv., and permission of instructor.*

A course dealing with the hospital organization and the relationship of the departmental components to the pharmacy. *Latiolais.*

**737 Pharmaceutical Analysis P G 5**

(712) Sp. 3 cl., 2 3-hr. lab.

*Prereq.: 636 or equiv.*

The use of specialized instruments in the assay and control methods of drugs and drug preparations. *Olson.*

**754 Microscopical Pharmacognosy P G 3**

(718) Su, W. 1 cl., 2 2-hr. lab.

*Prereq.: 553 or equiv.*

Pharmaceutical applications of specialized microscopic instruments. *Beal.*

**789 Research Principles and Techniques P G 3**

(730) A. 1 cl., 2 3-hr. lab.

*Prereq.: 535 and permission of instructor.*

Study and application of selected techniques and instruments useful in research in the pharmaceutical sciences. *Doskotch.*

**805 Technology G 3**

W. 1 cl., 2 3-hr. lab.

*Prereq.: 606 or equiv.*

Principles and practice in processing pharmaceutical dosage forms by the use of machines. Emphasis is on fundamentals of unit processes in pharmaceutical manufacture. *Guth.*

**806†\* Advanced Technology G 2-3**

Sp. 6-9 hrs. lab.

*Prereq.: 606 or equiv.**Repeatable to a maximum of 9 cr. hrs.*

A laboratory course designed to permit study of a variety of problems in pharmaceutical production, with the ultimate aim of pilot plant scale production. *Guth.*

**809 Product Development G 3**

Su. 1 cl., 2 3-hr. lab.

*Prereq.: 606 or equiv.*

Study of problems involved in formulation of suitable dosage forms and the relationship of physical, chemical, therapeutic, and organoleptic properties of medicaments to principles of formulation. *Guth.*

**811 Advanced Pharmacy G 3**

Sp. 3 cl.

*Prereq.: Chem. 532 or 521.*

A study of the application of physical chemical principles to the design and development of fluid pharmaceutical dosage forms. *Sokoloski.*

**812 Advanced Pharmacy G 3**

Su. 3 cl.

*Prereq.: 532 or 521.*

A study of the methods used to predict, determine, and improve the stability characteristics of medicinal agents in dosage form. *Sokoloski.*

**816 Principles of Hospital Pharmacy G 3**

(807) W. 3 cl.

*Prereq.: 715.*

A course dealing with the administrative and professional principles and concepts of, and trends affecting, hospital pharmacy. *Latiolais.*

**817 Principles of Hospital Pharmacy G 3**

(808) Sp. 3 cl.

*Prereq.: 816.*

A continuation of 816. *Latiolais.*

**825†\* Advanced Drug Marketing G 3**

W. 3 cl.

*Prereq.: 520, Bus. Org. 650 or equiv.*



Theoretical aspects of drug marketing with emphasis on policies and practices of the pharmaceutical manufacturer. *Knapp*.

**826 Advanced Pharmacy Administration G 3**

*Su, A. 3 cl.*

*Prereq.: 825, Bus. Org. 500 or equiv.*

*Repeatable to a maximum of 6 cr. hrs.*

Investigation and analysis of selected areas of pharmacy administration for group discussion and written report. Case problems, review of current literature, and research. *Knapp*.

**835 Advanced Pharmaceutical Chemistry G 3**

*A. 3 cl.*

*Prereq.: 535 or equiv.*

A study of the chemistry of synthetic organic medicinal agents with emphasis on the relation of structure to biologic action. *Bope*.

**836 Advanced Pharmaceutical Chemistry G 3**

*W. 3 cl.*

*Prereq.: 535 or equiv.*

A continuation of 835. *Bope*.

**845† Advanced Pharmaceutical Chemistry G 3**

*W. 3 cl.*

*Prereq.: Chem. 333.*

A study of the methods used in structure determination and synthesis of alkaloids. *LaPidus*.

**846\* Advanced Pharmaceutical Chemistry G 3**

*Sp. 3 cl.*

*Prereq.: 845.*

*Repeatable to a maximum of 6 cr. hrs.*

A continuation of 845 dealing primarily with steroidal hormones, glycosides, and antibiotics. *LaPidus*.

**850 Seminar G 1**

*A, W, Sp. 1 cl.*

Round table discussion, oral and written reports dealing with recent advances in the pharmaceutical sciences.

**851\* Advanced Pharmacognosy G 3**

*A. 3 cl.*

*Prereq.: Biochem. 612 or Bot. 431 or permission of instructor.*

A study of research involving biosynthesis of plant constituents of pharmaceutical interest. *Beal*.

**852†\* Medicinal Plant Propagation and Cultivation G 3**

*Sp. 3 cl.*

*Prereq.: Bot. 431 or permission of instructor.*

A study of the methods employed and problems involved in the propagation, cultivation, harvesting, and evaluation of medicinal plants. *Beal*.

**853 Medicinal Plant Laboratory G 2-3**

*Su, Sp. 6-9 hrs., lab.*

*Prereq.: 852 or permission of instructor.*

*Repeatable to a maximum of 12 cr. hrs.*

A laboratory course dealing with fundamental principles and special problems involved in the plantings and development of a medicinal plant garden. *Beal*.

**855\* Plant Drug Constituents G 3**

*(853) Su. 2 cl., 1 3-hr. lab.*

*Prereq.: Permission of instructor.*

A study of the more important classes of constituents obtained from plants, including methods of isolation, purification, and identification. *Beal, Doskotch*.

**870 Theories in Pharmacology G 3**

*A. 3 cl.*

*Prereq.: 672 or equiv.*

Orientation to graduate pharmacology. An introduction into theories of pharmacology and the research approach in pharmacology. *Nelson, Tye*.

**871 Screening Methods in Pharmacology G 3**

*W. 1 cl., 2 3-hr. lab.*

*Prereq.: 870 or equiv. and permission of instructor.*

Qualitative pharmacology covering the standard laboratory procedures and methods used in routine screening and laboratory evaluation of new drugs. *Nelson, Tye, Wolf*.

**872 Advanced Methods in Pharmacology G 3**

*Sp. 1 cl., 2 3-hr. lab.*

*Prereq.: 871 and permission of instructor.*

The theory and practice of specialized pharmacological instruments. *Tye, Nelson, Patil, Ober*.

**880\* Biological Standardization G 3**

*Su. 1 cl., 2 3-hr. lab.*

*Prereq.: 871 and permission of instructor.*

Quantitative pharmacology covering principles of bioassay design and interpretation. Laboratory consists of the performance of standard bioassays. *Nelson, Tye*.

**881†\* Advanced Topics in Pharmacology G 3**

*W. 3 cl.*

*Prereq.: 871 and permission of instructor.*

A study of current advanced theories of pharmacodynamics. *Nelson, Tye, Ober*.

**993 Individual Studies in the Pharmaceutical Sciences G 1-5**

*(890) Su, A, W, Sp. Cl., lab. arr.*

*Repeatable to a maximum of 15 cr. hrs.*

Individual investigation of problems in one of the areas below:

- a. Pharmacy.
- b. Pharmacy Administration.
- c. Hospital Pharmacy.
- d. Pharmaceutical Chemistry.
- e. Pharmacognosy.
- f. Pharmacology.

**999 Research in the Pharmaceutical Sciences G 1-15**

*(850) Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

## Philosophy

Office: 10 University Hall, 216 North Oval Drive.

PROFESSORS †NELSON (*Chairman*), EVANS (*Emeritus*), †FOX, †HINSHAW, †HOCHBERG, †TURNBULL, and †WEITZ; ASSOCIATE PROFESSORS †OLDENQUIST, †OLSCAMP, and REITHER (*Emeritus*); ASSISTANT PROFESSORS †ANDERSON, BROWN, GARNER, HAUSMAN, †KIELKOPF, ROSEN, and SEVERENS.

### 100 Types of Philosophy U 3

(400) A, W, Sp.

*Not open to students with credit for 101.*

Essentials of the various types of philosophy, such as idealism, materialism, dualism, and scepticism.

### 101 Introduction to Philosophy U 5

(401) A, W, Sp.

*Not open to students with credit for 100.*

Examination of major problems, such as the nature of reality, knowledge, truth, morality, and of the relation of philosophy to science and religion.

### 130 Introduction to Ethics U 5

(405) A, W, Sp.

The nature of right and wrong, good and evil; the grounds of moral choice and decision; the resolution of moral conflicts.

### 150 Introduction to Logic U 5

(402) A, W, Sp.

Deduction and induction: principles of clear statement and valid reasoning; fallacies; and the methods by which theories and laws are established.

### 170† Introduction to Philosophy of Religion U 3

(406) A.

A philosophical analysis of the nature of religion and the foundations of religious belief.

### 210 Philosophical Bases of Western Culture U 5

(520) A, W, Sp.

*Prereq.: Sophomore standing.*

*Not open to students with credit for (551) or (552).*

Elucidation of major philosophical themes and their humanistic and scientific roles in western thought through the writings of Plato, Lucretius, Augustine, Descartes, Kant, and Nietzsche. *Weitz, Turnbull, Fox.*

### 230 Social Ethics U 5

(510) Sp.

Issues of ethical theory and their bearing on the problems of the nature of a good social order and of right social action.

### 240 Esthetics U 5

(515) W, Sp.

Principal systems of esthetics; interpretation of the creative activity of the artist, the work of art, and the contemplation and criticism of art objects. *Brown, Garner.*

### 511 History of Ancient and Medieval Philosophy U G 5

(601) A.

*Not for graduate credit to students majoring in Philos.*

*Turnbull, Chase.*

### 512 History of Philosophy from Bacon to Hume U G 5

(602) W.

*Not for graduate credit to students majoring in Philos.*

*Hausman, Chase.*

### 513 History of Philosophy from Kant through the Nineteenth Century U G 5

(603) Sp.

*Not for graduate credit to students majoring in Philos.*

*Olcamp, Chase.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 and 700

Not open to freshmen or sophomores. Unless otherwise indicated the prerequisites for 600 and 700 courses are ten hours in philosophy.

### 611 Contemporary Philosophy U G 5

(604) A, W.

*Not open to students with credit for (605).*

Examination of the doctrines of such philosophers as Bergson, Santayana, Whitehead, Russell, and Dewey. *Hochberg, Severens.*

### 613†\* American Philosophy U G 3

(607) Sp.

The development of American philosophy; puritanism, deism, transcendentalism, and pragmatism.

### 615 Philosophy of James and Dewey U G 3

(642) Sp.

*Rosen.*

### 617 Existentialism U G 3

A.

*Not open to students with credit for (605).*

Introduction to the major doctrines of existentialism through writings of representative existentialists, such as Kierkegaard, Sartre, Jaspers, Heidegger. *Brown.*

### 631 Advanced Ethical Theory U G 5

(671) Sp.

*Prereq.: 130.*

An intensive examination of representative ethical systems such as egoism, hedonism, intuitionism, and utilitarianism. *Olcamp.*

### 641† Advanced Esthetic Theory U G 3

Sp.

*Prereq.: 240.*

An intensive examination of representative esthetic systems such as Imitationalism, Expressionism, Formalism, and Emotionalism.



**650 Symbolic Logic I U G 3**  
(649) A.

*Prereq.: 150 or permission of instructor.*

Development of the classical propositional calculus from both the matrix and the axiomatic points of view. Modal, multivalued, weak, intuitionistic, propositional calculi. *Kielkopf.*

**651 Symbolic Logic II U G 3**  
(650) W.

*Prereq.: 650 or permission of instructor.*

Axiomatic development of the predicate calculus of first-order through proofs of consistency and completeness. Equality, restricted quantification, and descriptions. *Kielkopf.*

**653 Inductive Logic and Probability U G 3**  
Sp.

*Prereq.: 150 or permission of instructor.*

Analysis of types of empirical inference; natural law and confirmation theory; calculus and nature of probability; philosophic presuppositions of inductive inference. *Stelzer.*

**671†\* Philosophy of History U G 3**  
(665) A.

An assay of representative speculative theories of history; analysis of critical problems arising in the pursuit of historical knowledge.

**672 Philosophy in Literature U G 5**  
(618) A.

Philosophical problems as reflected in classics of literature, such as the Greek dramatists, Shakespeare, Voltaire, T. S. Eliot, Proust and Tolstoy. *Brown.*

**673†\* Philosophy of Language U G 3**  
(666) W.

*Prereq.: 150, or permission of instructor.*

Semantics and language analysis; functions of language; modes of meaning, relation of linguistic structure to metaphysics.

**675 Philosophy of Religion U G 5**  
(653) W.

A study of religious concepts and problems; the idea and nature of God, of man, their relation to the world and human destiny. *Fox.*

**676 Philosophy of Science U G 3**  
(652) W.

A study of the nature and structure of scientific concepts, laws, and theories; appraisal of methodologies, presuppositions, and frames of reference in science. *Hinahaw, Stelzer.*

**677 Conceptions and Methods of the Social Sciences U G 3**

(654) Sp.

Philosophic assumptions of social science: nature of explanation (methodological individualism, holism, functionalism); methods in natural and behavioral science; fact and value in social inquiry. *Hochberg.*

**693 Individual Studies in Philosophy U G 2-10**

(701) A, W, Sp.

*Prereq.: Permission of Department Chairman.*

Students ordinarily earn from 2 to 5 cr. hrs., but honor students may earn up to 10 cr. hrs.

**712\* Philosophy of Plato U G 5**  
(638) A.

*Prereq.: 10 cr. hrs. of Philos. including 511.*

*Fox.*

**713\* Philosophy of Aristotle U G 5**  
(639) Sp.

*Prereq.: 10 cr. hrs. of Philos. including 511.*

*Turnbull.*

**714†\* Medieval Philosophy U G 5**  
(609) Sp.

*Prereq.: 10 cr. hrs. of Philos. including 511, or 712 and 713.*

An examination of the main trends in the thought of the middle ages, based on a study of characteristic works of some of the most important medieval philosophers.

**715† Selected Topics in Medieval Philosophy U G 3**

Sp.

*Prereq.: 10 cr. hrs. in Philos. including 511.*

*Not open to students with credit for 714.*

*Repeatable with permission of instructor.*

**717† Philosophy of Descartes U G 3**  
(635) A.

*Prereq.: 10 cr. hrs. of Philos. including 512.*

**718 Philosophy of Locke and Berkeley U G 3**

(633) W.

*Prereq.: 10 cr. hrs. of Philos. including 512.*

*Olskamp.*

**719\* Philosophy of Spinoza U G 3**  
(636) Sp.

*Prereq.: 10 cr. hrs. of Philos. including 512.*

*Severens.*

**720† Philosophy of Leibniz U G 3**  
(637) W.

*Prereq.: 10 cr. hrs. of Philos. including 512.*

**721† Philosophy of Hume U G 3**  
(634) A.

*Prereq.: 10 cr. hrs. of Philos. including 512.*

*Olskamp.*

**722†\* Kant: Critique of Pure Reason U G 5**  
(646) W.

*Prereq.: 10 cr. hrs. of Philos. including 513.*

**723†\* Kant: Critique of Practical Reason and Critique of Judgment U G 5**

(647) Sp.

*Prereq.: 722.*

**724† Post-Kantian German Idealism U G 3**  
(640) Sp.

*Prereq.: 10 cr. hrs. of Philos. including 513.*

German philosophy as presented in writings of such thinkers as Fichte, Schelling, Hegel, and Schopenhauer.

**760 Theory of Knowledge I** U G 3  
(661) W.

*Prereq.: 650 or 651, or permission of instructor.*

A study of major epistemological problems: the possibility, origin, foundation, structure, methods, limits, types, and validity of knowledge. *Hinshaw.*

**761 Theory of Knowledge II** U G 3  
Sp.

*Prereq.: 760 or permission of instructor.*

An intensive study of a systematic epistemological treatise, such as Blanshard's *Nature of Thought*, Lewis' *Mind and the World Order*, or Lovejoy's *Revolt Against Dualism*. *Hinshaw.*

**763 Problems in Metaphysics I** U G 3  
(663) A.

*Prereq.: 150 and permission of instructor.*

Philosophic methods and nature of metaphysics; categories; substance and process; causality and law. *Nelson.*

**764 Problems in Metaphysics II** U G 3  
(664) W.

*Prereq.: 763 or permission of instructor.*

Metaphysical presuppositions of knowledge; problems of universals; monism and pluralism; space and time. *Nelson.*

**767 Philosophy of Mind** U G 3  
(657) A.

Classical and contemporary approaches to the nature of mind, mind-body, other minds, intentionality, and other problems. *Weitz.*

**770 Advanced Studies in Philosophy** U G 3-5  
(720) A, W, Sp.

*Prereq.: Permission of instructor.*  
*Repeatable.*

A. Theories of Truth. *Rosen.*  
W. Problems in Philosophical Psychology. *Oldenquist.*

Sp. Philosophy of Wittgenstein. *Weitz.* Syntactic Structures. *Garner.*

**771 Selected Topics in Analytic Philosophy** U G 3  
A, W, Sp.

*Prereq.: 150 and 611.*  
*Repeatable with permission of instructor.*

*Hausman, Severens, Weitz, Stelzer.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 900**

Unless otherwise indicated the prerequisites for 800 and 900 courses are acceptable foundation courses either in general philosophy, logic and ethics, or history of philosophy, and in some cases in all these subjects.

**811 Seminar in the History of Philosophy** G 3  
(825) W, Sp.

*Repeatable.*  
*Turnbull, Foz.*

**831† Seminar in Ethics and Theory of Value** G 3  
(824) A.

*Repeatable.*  
*Oldenquist.*

**841† Seminar in Aesthetics** G 3  
(827) Sp.

*Repeatable.*

**850† Seminar in Logic** G 3  
(821) A.

*Repeatable.*

**853† Seminar in Induction and Probability Theory** G 3  
(830) Sp.

*Repeatable.*

**861 Seminar in Theory of Knowledge** G 3  
(829) W.

*Repeatable.*  
*Hochberg.*

**864 Seminar in Metaphysics** G 3  
(822) Sp.

*Repeatable.*  
*Nelson.*

**870† Seminar in Philosophy of Mathematics** G 3  
(828) Sp.

*Repeatable.*

**875† Seminar in the Philosophy of Religion** G 3  
(807) W.

*Repeatable.*  
*Foz.*

**877† Seminar in Philosophy of Science** G 3  
(829) W.

*Repeatable.*

**885 Seminar in Philosophical Analysis** G 3  
(826) A, W, Sp.

*Repeatable.*  
*Hochberg, Severens, Weitz.*

**999 Research in Philosophy** G Arr.  
(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Photography

*Office: 12 Brown Hall, 190 West 17th Avenue.*

PROFESSORS WAGNER (Chairman) and DAVIS;  
ASSOCIATE PROFESSORS BINAU and DRAKE; AS-  
SISTANT PROFESSORS BALL, PIATT, and STAPLES;  
and INSTRUCTOR.

**201 Photography** U 3  
(511) A, Sp. 2 cl., 2 2-hr. labs.

Fundamentals of photography, including cameras, emulsion characteristics, processing, filters, chemistry, and optics. *Binau, Wilhelm.*



**501 Advanced Photography U G 3**  
(650) W. 2 cl., 2 2-hr. lab.

Prereq.: 201 or 594.

Continuation of 201 or 594. Binau, Wilhelm.

**505 Theory of Photography and the Moving Image U G 3**

(605) A, Sp. 2 2-hr. cl.

Prereq.: Graduate or 4th yr. standing and permission of instructor.

A study of the development of the art and science of photography and its relation to related arts and sciences. The photographic origins of the still and motion picture. Staples.

**506 Photography in Education and Communication U G 3**

(603) W. 2 2-hr. cl.

Prereq.: Graduate or 4th yr. standing and permission of instructor.

Photographic media in education and communication. Role of the photographic image in relation to educational theory. Development of photographic systems in educational and informational programs. Staples, Wagner.

**507 Application of Photographic Processes to Television U G 3**

(610) W. 2 cl., 2 lab. hrs.

Motion picture production for use in television. Film production planning, continuity, and photographic processes. Special problems in telecasting and relationship of film units to other station activities. Staples.

**508 Motion Picture Photography U G 3**

(615) A, Sp. 2 cl., 2 lab. hrs.

Prereq.: (510) or 201 or 594 or permission of instructor.

Motion picture production in the 16 mm. field. Principles of motion picture cameras, photography, processing, scripting, editing, sound recording, and production planning. Staples.

**594 Scientific Photography U G 3**

(625) A, W. 2 cl., 2 2-hr. lab.

Prereq.: Chem. 111, 112, 113 or equiv., 20 cr. hrs. in a science major.

Not open to students with credit for 201.

For students in physical and biological science who need a knowledge of photography as an aid to their scientific work. Applications of photography to science. Binau, Davis, Drake.

**693 Individual Studies in Photography U G 3-5**

(699) A, W, Sp. 4 to 8 lab. hrs.

Prereq.: Graduate standing, 6 cr. hrs. in Photog., and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Use of departmental facilities for adding to the student's knowledge of a specially selected photographic problem pertaining to his major field.

**Physical Education**

Office: Men's: 124 Physical Education Building, 337 West 17th Avenue.

PROFESSORS †HESS (Chairman), †ASHBROOK, †BENNETT, †CUSHMAN, HAYES, †HIXSON, LARKINS, †MAND, and †MATHEWS; ASSOCIATE PROFESSORS †BARTELS, BIGGS, †HENDRIX, HEWLETT, †KAPLAN, KAROW, MONTONARO, STAHL, and WIRTHWEIN; ASSISTANT PROFESSORS BEEKMAN, †BOWERS, †CARROLL, CLARK, COATES, ERSING, FREDERICKS, HARPER, †KLEINMAN, SWEENEY, and TAYLOR; INSTRUCTORS BEETHAM, BREINER, BURKHOLDER, DUNLAP, O'BRIEN, OLSON, SARKINEN, SIMONIAN, and STROBEL.

Office: Women's: 201 Pomerene Hall, 1760 Neil Avenue.

PROFESSORS †MORDY (Chairman), †ALKIRE, †ALLENBAUGH, †BEYERER, RUPERT, and †YOST; ASSOCIATE PROFESSORS BAILEY, †CRAFTS, †FELSHIN, †FOGLE, †LOGSDON, and SCHROEDER; ASSISTANT PROFESSORS BLAINE, FERDUN, HAYS, HULL, LILLY, PAYTON, and WHEELER; INSTRUCTORS BOWERS, FOX, HERROLD, HOUSE, HUKILL, OLSON, PATTON, and TANDY.

**101 Physical Education (Men) U 1**

(401) A, W, Sp. 2 cl.

Not open to Phys. Ed. majors.

Instructions in the technique of play, rules, strategies, and the social behavior involved in sports and dance activities.

**102 Physical Education (Men) U 1**

(402) A, W, Sp. 2 cl.

Continuation of 101.

**103 Physical Education (Men) U 1**

(403) A, W, Sp. 2 cl.

Continuation of 102.

**104 Physical Education (Women) U 1**

(421) A. 2 cl.

Not open to majors in Phys. Ed.

Instructions in the techniques, rules, strategy, and social behaviors of a sport or dance activity selected by the student from a wide range of offerings.

**105 Physical Education (Women) U 1**

(422) W. 2 cl.

Continuation of 104.

**106 Physical Education (Women) U 1**

(423) A, W, Sp. 2 cl.

Continuation of 105.

**107 Physical Education U 1**

(425) A, W, Sp. 2 lab. hrs.

Not open to Phys. Ed. majors.

Cannot be repeated for credit.

a. Men

A continuation of 103.

b. Women

A continuation of 106.

**108 Physical Education U 1**

(426) A, W, Sp. 2 lab. hrs.

Continuation of 107.

a. Men

b. Women

- 109 Physical Education U 1**  
 (427) A, W, Sp. 2 lab. hrs.  
 Continuation of 108.  
 a. Men  
 b. Women

- 131 Physical Education Activities U 2**  
 (411) A. 5 2-hr. labs.  
*Prereq.: Permission of the chairman.*  
*Reqd. of Phys. Ed. majors, and open to women in place of 104, 105, or 106.*

These courses aim to develop knowledge, understandings, and skills in the basic activities appropriate to the teacher of physical education.

- a. Men  
 b. Women

- 132 Physical Education Activities U 2**  
 (412) W. 5 2-hr. labs.  
*See requirements for 131.*

Continuation of 131.

- a. Men  
 b. Women

- 133 Physical Education Activities U 2**  
 (413) Sp. 5 2-hr. labs.  
*See requirements for 131.*

Continuation of 132.

- a. Men  
 b. Women

- 214 The Science of Development through Activity U 5**  
 (514) A, W, Sp. 4 cl., 1 2-hr. lab.  
*Prereq.: Physiol. 110, Anat. 200.*

A systematic study of factors in human movement which affect the physiological development of the organism.

- 221 Sports Officiating—Football U 2**  
 (520) A. 2 cl., 2 lab. hrs.

*Prereq.: 253 or satisfactory evidence of playing experience in football. Students completing this course are eligible for certification to officiate football in the schools of Ohio.*

This course will include lectures, readings, class discussions, and field experience in the officiating of school and college football games.

- 222 Sports Officiating—Basketball U 2**  
 (521) 2 cl., 2 lab. hrs.

*Prereq.: 132 or satisfactory evidence of playing experience in basketball.*

Lectures, readings, class discussions, and field experience in the officiating of school and college basketball games.

- a. Men  
 A. W.  
 b. Women  
 W.

- 231 Physical Education Activities U 2**  
 (414) A. 5 2-hr. labs.  
*Prereq.: Permission of the chairman.*  
*Reqd. of Phys. Ed. majors.*  
*Cannot be repeated for credit.*

These courses aim to develop knowledge, understandings, and skills in the basic activities appropriate to the teacher of physical education.

- a. Men  
 b. Women

- 232 Physical Education Activities U 2**  
 (415) W. 5 2-hr. labs.  
*See requirements for 231.*

Continuation of 231.

- a. Men  
 b. Women

- 233 Physical Education Activities U 2**  
 (416) Sp. 5 2-hr. labs.  
*See requirements for 231.*

Continuation of 232.

- a. Men  
 b. Women

- 270 Supervision of Playground and Community Recreation Activities U 2**  
 (432) Sp. 2 2-hr. labs.

Programming of recreational activities relative to community conditions. Overview of activities desirable for a broad, comprehensive program.

- 271 Camp Counseling U 3**  
 (560) A. 2 cl., 7-day Sept. workshop  
 Sp. 2 2-hr. cl.

*Prereq.: Phys. Ed. major and minor students shall have completed the Sept. workshop immediately preceding the qtr. of enrollment. Spring qtr. section is open to all University students.*

Investigation of the responsibilities and duties of the counselor in various types of camps. Practical experience in basic craft skills.

- 323 Creative Physical Education for Elementary Teachers U 3**  
 (576) A, W, Sp. 2 2-hr. labs.

*Not open to students with credit for 546.*

Theory of physical activities as a medium for creative self-expression. Exploration of rhythmical, individual and group activities and their relation to development of children.

- 420 The Teaching of Athletic Sports**  
 2 cl., 2 lab. hrs.

*Prereq.: Satisfactory evidence of playing skill in the elected athletic sport.*

*Repeatable to a maximum of 9 cr. hrs.*

Study in the theory strategy and mechanics of coaching various interscholastic, intercollegiate athletic sports.

- .01 Baseball U 3**  
 a. Men

W.

- b.† Women  
 A, Sp.

*Not open to students with credit for 547.*

- .02 Basketball U 3**  
 a. Men

A, Sp.

- b. Women  
 Sp.

*Not open to students with credit for 519.*

- .03 Fencing U 2**  
 a.† Men

A.

- b.† Women  
 W.



- .04 Football U 3  
a. Men  
W.  
Not open to students with credit for 546.
- .05 Gymnastics U 3  
a. Men  
Sp.  
b. Women  
A.
- .06 Golf U 2  
a. Men  
Sp.  
b.† Women  
Sp.
- .07 Lacrosse U 3  
a. Men  
A.  
b.† Women  
A.
- .08 Soccer U 3  
a.† Men  
Sp.  
b. Women  
Sp.
- .09 Swimming U 3  
a. Men  
Sp.  
b. Women  
W.  
Not open to students with credit for 549.
- .10 Tennis U 2  
a.† Men  
A.  
b. Women  
A.
- .11 Track and Field U 3  
a. Men  
W.  
b.† Women  
Sp.  
Not open to students with credit for 544.
- .12 Wrestling U 2  
a. Men  
A.

### 530 The Administration of Interschool Athletics U 2

(616) A, Sp. 2 cl.

An introductory course in athletic administration, including scheduling contests, records, eligibility, contest management, facilities and equipment, budgets and finance, public relations, and awards.

### 541 Theory and Practice of Elementary School Physical Education U 3

A. 2 2-hr. labs., 1 3-hr. school observation.

Contribution of rhythmical, individual and group activities to the development of children. Stimulation of the creative process and adaption of methods and materials.

### 542 Physical Education for the Elementary School Child U 4

W.

Study of characteristics of the elementary school child with implications for physical education experiences. The selection, adaptation and teaching of appropriate activities are emphasized.

- a. Men  
2 2-hr. cl., 1 3-hr. lab.  
Prereq.: Psychol. 230.
- b. Women  
2 1-hr. cl., 1 2-hr. lab., 2 3-hr. lab.  
Prereq.: 541, Psychol. 230.

### 543 The Theory and Practice of Physical Education for Junior High School Youth U 3

Sp. 5 lab. hrs.

A study of the developmental needs of nearly adolescent youth. Emphasis is placed upon the adaptation of physical activities to meet these needs.

### 589 Directed Teaching Experience in Physical Education U 2

(551) A, W, Sp. 4 hr. lab.

Prereq.: Permission of departmental adviser.

Repeatable to a maximum of 6 cr. hrs.

Opportunity is provided for assisting in the teaching of sport and dance activity classes.

- a. Men  
b. Women

### 621 Principles of Physical Education U G 5

A, W, Sp. 5 cl.

Prereq.: Major or minor in Phys. Ed. or permission of the instructor.

Origins and nature of modern physical education as developmental experience and medium of education. Contributions to organic growth, personal resources, and growth in social relationships.

### 630 Problems in Intramural Sports U G 2

(615) Sp. 2 cl. hr.

A critical analysis of intramural sports programs. Problems of policy and administration of programs on the elementary, secondary and college levels will be studied. Beekman.

### 640 History of Health and Physical Education U G 3

W. 3 cl.

An historical survey of physical and health education beginning with ancient Greece and with special emphasis on recent and contemporary developments in Europe and America. Bennett.

### 642 Organization and Administration of Physical Education U G 5

(682) W. 5 cl.

Prereq.: 621 or equiv.

Study of policies and procedures in the organization and administration of the physical education program. Hess, Mordy.

### 647 Physical Education for Secondary School Youth U G 3

Prereq.: Satisfactory proficiency in 231-233 inclusive, or equiv.

Emphasis on the study of needs, interests and abilities of secondary school youth, and methods and materials for the conduct of appropriate sports activities. Crafts, Hendrix and Hixson.

- a. Men  
A, Sp. 2 2-hr. cl.
- b. Women  
A. 3 2-hr. cl.

**648 Physical Education for Senior High School Youth U G 3***Sp. 3 2-hr. cl.**Prereq.: 231-233 inclusive, or equiv.*

Continuation of 647 with emphasis on the characteristics of the middle adolescent as they affect the selection and conduct of physical education activities. *Crafts.*

**650 Evaluation in Physical Education U G 3***(625) W. 2 cl., 1 2-hr. lab.*

A critical study of methods in evaluating biological, social and psychological outcomes for physical education. *Mathews.*

**660 Kinesiology U G 5***(691) A, W, Sp. 3 cl., 2 2-hr. labs.**Prereq.: 214 or equiv., and 10 qtr. hrs. of Anat. and Physiol.*

The science of bodily movement. *Bartels, Mand.*

**661 First Aid and Care of Injuries U G 5***(635) A, Sp. 3 cl., 2 2-hr. labs.**Prereq.: 660 or equiv.*

*Students completing this course are eligible for Red Cross standard or advanced certification in first aid.*

A consideration of the methods of prevention and care of injuries, conditioning of athletes and safety provisions for the conduct of physical education. *Biggs.*

**662 Adapted Physical Education U G 5***(680) Prereq.: 660 or equiv.*

Organization and administration of individual physical education for typical and atypical students. Laboratory experience in sports, swimming, or exercise therapy for prevalent types of disabilities. *Ersing, Wheeler.*

*a. Men**A, Sp. 3 cl., 1 4-hr. lab.**b. Women**Sp. 4 cl., 2 lab. hrs.***690 Physical Education Workshop U G 4***(799) Su. 3-week workshop**Prereq.: Teaching experience or senior standing in Phys. Ed. and permission of instructor.*

A team approach to activity teaching in Physical Education with emphasis on instruction, methods, materials, resources, evaluation, inter-relationships, and others.

*a. Men**Hixson.**b. Women**Crafts.***693 Individual Studies in Physical Education U G 1-4***(701) A, W, Sp.**Prereq.: Grad. or senior standing and permission of adviser.*

Investigation of selected professional problems.

**770 Outdoor Education and Camp Administration U G 3***(649) Sp. 3 cl.**Prereq.: 271 or permission of the instructor.*

Introduction to the principles, status and administration of outdoor education and camping. *Mand.*

**771 Public Recreation: Its Organization and Administration U G 3***(655) W. 3 cl.**Prereq.: Soc. 465 or equiv.*

Consideration of common patterns of organization of community recreation found in American cities, large and small, under municipal school and other auspices. *Mand.*

**820 Principles of Football Coaching and Management G 3***(601) Su. 3 cl.**Prereq.: Grad. standing and coaching experience.*

A course for advanced students of football considering the principles of various types of strategy. The designing of plays, methods of teaching and controlling players and special problems of management. *Hayes.*

**830 Problems in Interscholastic and Intercollegiate Athletics G 3***(816) W. 3 cl.*

The relation of athletics to education; problems of athletic organization; eligibility; finance, current trends and developments in management and purpose; public relations. *Hixson.*

**831 Professional Preparation of Teachers in Physical and Health Education G 3***(846) Sp. 3 cl.*

Principles underlying professional preparation of teachers in physical and health education; curriculum construction; selection of candidates; supervised teaching; staff personnel; problems pertaining to professional students. *Hess.*

**841 Physical Education in School and College G 3***(805) A. 3 cl.***842 Seminar in the Role of Sports in Society G 3***(814) Sp. 3 cl.**Prereq.: Soc. 465 or equiv.*

Study of the significance of sports in society; and examination of the extent to which sports contribute to human welfare. *Mordy.*

**850 Survey of Research in Physical Education G 3***(810) W. 3 cl.**Prereq.: 885 or equiv.**Mathews.***860 Organic Science as Applied to Physical Education and Health Education G 5***(823) Sp.**Prereq.: 10 hrs. Physiol., 10 hrs. Chem., and 10 hrs. Biol. or equiv.*

A systemic study of the integration of chemistry, biology, anatomy, physiology to the fields of physical education and health education. *Ashbrook.*

**880 Supervision of Physical and School Health Education G 3***(826) A. 3 cl.*

A study of the responsibilities and functions of the supervisor in city, county and state school systems. *Hixson.*



**885 Methods of Research in Health Education and Physical Education G 3**

(825) A. 3 cl.

To develop some competency in professional writing and in the use of various research methods applied to health education and physical education. *Mathews.*

**994 Problems in Physical Education G 3**

(820)

Advanced problems in physical education, individual or group participation.

**.01 Recreation**

A.

**.02 Adapted Physical Education**

W.

**.03 Curriculum in Physical Education**

Sp.

**.04 Physical Education in Higher Education**

A.

**.05 Physical Education in Secondary Education**

Sp.

**.06 Physical Education in Elementary Education**

W.

**.07 School Evaluation**

W.

**.08† Administration**

W.

**995 Seminar in Physical Education G 2**

(802) W. 2 cl.

**996 Seminar in Recreation G 2**

(803) Sp. 2 cl.

**999 Research in Physical Education G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Physical Medicine

Office: Dodd Hall, 472 West 8th Avenue.

PROFESSOR †JOHNSON (Chairman); ASSOCIATE PROFESSORS HAMILTON, †NAGI, and †STOW; ASSISTANT PROFESSORS GUYTON, †MELVIN, and †SPIEGEL.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with departments of Med., Ob. Gyn, Ophthal., Otol., Ped., Prev. Med., Psychiatry, Radiol., and Surg.]

[Interdisciplinary instruction and patient demonstrations stressing deviations, muscular weakness, electrodiagnosis, and total evaluation of severely disabled patients of all ages.]

**715 Medical Rehabilitation P 1**

1 month, offered Oct., Feb.

Prereq.: Med. 4th yr. standing.

Ambulation aids, electrodiagnosis, prosthetics, physical and occupational therapy, social service, as related to acute and chronic diseases. *Johnson and Staff.*

**735 Clinical Physical Medicine P 6, 12, 18 and Rehabilitation**

1, 2, or 3 months; offered any month.

Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

Ward experience in restorative medical procedures on individuals with severe chronic disabilities. *Guyton, Melvin, Johnson, and Spiegel.*

**736 Clinical and Biophysical Bases of Physical Treatment P G 3**

Sp.

Prereq.: Permission of instructor.

The indications for, and choice of, physical modalities. *Melvin and Stow.*

**745 Biophysical Basis of Physical Treatment P 6, 12, 18**

1, 2, or 3 months; offered any month.

Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

The student will design and complete a laboratory or library research problem involving the biophysical aspects of physical diagnosis or treatment. *Johnson, Stow, Melvin, and Nagi.*

**750 The Natural History of Disability P G 3**

A. 3 1-hr. cl.

Prereq.: Graduate or Professional registration and permission of instructor.

An analysis of the nature and patterns of disability, the processes involved, and the factors influencing its course.

**770 Instrumentation, Neurophysiology, Clinical Aspects of Electromyography G 3**

W.

Prereq.: M.D. Degree enrolled in approved residency and permission of department chairman.

Indepth study of the instrumentation and correlation of neurophysiology and clinical aspects of myopathic, including excitable membranes, biological potentials and nerve condition in clinical disorders.

**799 Residency in Physical Medicine P 18**

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident; University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through physical medicine and rehabilitation clinical inpatient and outpatient services; consultative, supervisory and teaching responsibilities in the patient-care team; rounds, conferences, seminars. *Burk, Guyton, Johnson, and Spiegel.*

**993 Individual Studies in Physical Medicine G 3-5**

(793) Su, A, W, Sp.

Prereq.: 735 and permission of instructor.

Minor investigations using electrodiagnostic techniques; biophysical, physiologic, and therapeutic effects of physical agents, and other medical rehabilitation techniques. *Johnson, Stow, Nagi.*

**999 Research in Physical Medicine and Rehabilitation G Arr.**

Su, A, W, Sp.

Research for thesis purposes only.

## Physical Therapy

(School of Allied Medical Services)

Office: 209 Dodd Hall, 472 West 8th Avenue.

ASSISTANT PROFESSOR WOODS (*Division Director*); PROFESSOR †JOHNSON; ASSISTANT PROFESSOR ‡BURNETT; INSTRUCTORS CARLISLE, †COPELAND, and STARKS."

### 100 Introduction to Physical Therapy U 2

(500) A. 2 cl.

A general orientation of physical therapy and its relation to medical services; medical ethics, medical terminology, personal relationships, institutional contracts, and patient management. *Woods.*

### 301 Physical Therapy Arts U 2

(501) A. 3 cl., 1 1-hr. lab.

Prereq.: Admission to Phys. Ther.

Orientation to medical facility organization, departmental administration, and medical-legal problems, introduction to the application of physical therapy in medical problems. *Copeland.*

### 302 Massage U 2

(502) A, 1 cl., 1 3-hr. lab.

Prereq.: Admission to Phys. Ther., *Physiol.* 311 or concur.

History, application, physiological effects, indications, contra-indications of massage, surface anatomy. *Woods.*

### 303 Basic Kinesiology Tests and Measurements U 3

(503) W. 1 cl., 2 2-hr. lab.

Prereq.: Admission to Phys. Ther. or Oc. Ther.; Anat. 201 with a grade of "C" or better.

Principles of body mechanics, and analysis of muscle and joint actions in coordinated movement. Theory and practice of muscle testing and joint measurements. *Copeland.*

### 304 Advanced Kinesiology in Physical Therapy U 3

(600) Sp. 2 cl., 1 2-hr. lab.

Prereq.: 303.

Biomechanics and pathomechanics in the analysis of human motion; emphasis on hand function; gait deviations; correlation of lecture and laboratory material with case presentations. *Burnett.*

### 310 Functional Anatomy and Basic Therapeutic Exercise U 4

(510) W. 2 cl., 2 2-hr. lab.

Prereq.: 302; Anat. 201 with a grade of "C" or better.

The application of physical therapy techniques to osteology, arthrology, and myology; theory and technique of exercise. *Pierson.*

### 400 Selected Problems in Physical Therapy U 1-3

(612) Sp. 2 cl., 1 1-hr. lab.

Prereq.: 301.

Survey and analysis of selected problems in administration and supervision; introduction to scientific research. *Woods.*

### 402 Physical Therapy Procedures U 3

(602) A. 2 cl., 2 2-hr. lab.

Prereq.: Admission to Phys. Ther.

Theory, technique, demonstration and practice in the use of physical agents in physical therapy including: thermotherapy, cryotherapy, hydrotherapy, electrotherapy and ultrasonic therapy. *Pierson.*

### 403 Neuromuscular Disease U 2

(603) W. 2 cl.

Prereq.: Anat. 201.

Anatomy and physiology applied to the physical therapy techniques of treating neuromuscular diseases; clinical presentation of neurological patients. *Johnson.*

### 404 Medical Science U 5

(604) W. 5 cl., 1 1-hr. lab.

Prereq.: Admission to Phys. Ther., 402.

Lectures and clinical presentation of patients in the medical science fields related to physical medicine, to include medicine, surgery, orthopedics, geriatrics, neurology, psychiatry, gynecology, obstetrics, dermatology, and roentgenology. *Medical Staff.*

### 405 Advanced Therapeutic Exercise U 4

(605) Sp. 2 cl., 2 2-hr. lab.

Prereq.: 310.

Theory and technique of muscle re-education and the application of special exercise techniques to medical, orthopedic, post-surgical, and neurological disorders; laboratory demonstrations and supervised clinical practice. *Burnett.*

### 407 Physical Rehabilitation U 4

(607) Sp. 2 cl., 3 2-hr. lab.

Prereq.: 415.

Theory, techniques and equipment used in the physical restoration of the disabled; emphasis on concepts of total patient care through rehabilitation; laboratory demonstrations and practice. *Pierson.*

### 415 Special Techniques and Procedures U 3

(615) W. 3 cl.

Prereq.: 402.

Adaptations and modifications of physical therapy in treating the pediatric and geriatric patient; measurement of levels of physical fitness; introduction to upper extremity prosthetics. *Burnett.*

### 416 Effects of Agents Used in Physical Therapy U 3

(616) A. 3 cl.

Prereq.: 402 or concur.

Physiological effects of heat, cold, light, water, electricity, sound, and exercise, as used in the diagnosis and treatment of disease. *Waylonis.*

### 450 Seminar U 1-2

(609) A.

Prereq.: Permission of instructor.

Student participation in department medical seminars at which papers of current interest are presented by physicians and invited guests from related fields. *Woods and Staff.*

### 451 Seminar U 1-2

(610) W.

Prereq.: Permission of instructor.



Student participation in department medical seminars at which information of current interest is presented by physicians and invited guests from related fields. *Woods and Staff.*

#### 452 Seminar U 1-2

(611) *Sp.*

*Prereq.: Permission of instructor.*

Student participation in department medical seminars at which information of current interest is presented by physicians and invited guests from related fields. *Woods and Staff.*

#### 485 Physical Medicine Clinical Coordination U 3

(608) *Sp. 2 cl., 2 2-hr. lab.*

*Prereq.: 415.*

Coordination and summary practice of all physical therapy procedures, being determined by the patient diagnosis and medical prescription; records, charts, and methods of reporting; clinical planning. *Copeland.*

#### 486 Clinical Conference and Observation U 2

(613) *Su, A, W, Sp. 2 cl.*

*Prereq.: Permission of instructor and completion of all major courses.*

Therapeutic problems arising from clinical practice in the field, and the observation of surgical procedures on patients most likely to receive physical therapy and rehabilitation. *Woods and Staff.*

#### 487 Clinical Practice in Physical Therapy U 18

(614) *Su, A, W, Sp. 5 3-hr. lab.*

*Prereq.: Permission of instructor and completion of all major courses.*

Clinical application of physical therapy techniques under supervision in physical medicine and rehabilitation departments of affiliated hospitals; practice with assigned patients. *Woods and Staff.*

## Physics

Office: 121 Physics Building, 174 West 18th Avenue.

PROFESSORS †JOSSEM (Chairman), †DICKY (Vice-Chairman), †BELL, †BROWN, †EDWARDS, †HAUSMAN, †HEER, †JASTRAM, †KORRINGA, LANDE (Emeritus), †MILLS, †NELSON, †C. NIELSEN, †H. NIELSEN, †OETJEN, †POOL, †PREBUS, †RAO, †ROMANOWSKI, †SHAFFER, †C. SHAW, †J. SHAW, ALPHEUS SMITH (Emeritus), †TANAKA, and †WADA; ASSOCIATE PROFESSORS †ARNS, †ERICKSON, †GAINES, †HARRIS, †HSU, †KIM, KURBATOV (Emeritus), †MATE, †MULLIGAN, †PLOUGHE, †REIBEL, RILEY, †SEYLER, †WIGEN, †YANG, †Yaqub, and †ZUMSTEIN; ASSISTANT PROFESSORS †BLATT, BRIM (Lima Branch), †CHU, †DONOGHUE, PETRUZZELLA (Mansfield Branch), †REAY, †SANDERSON, and †TOUGH.

#### 101 Nature of the Physical World U 5

(401) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Not open to students with credit for General Studies (431).*

A unified elementary non-mathematical description of the physical universe for cultural value, emphasizing scientific method and current topics. Laboratory demonstration and telescopic observation. *Harris.*

#### 102 Nature of the Physical World U 5

(402) *W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 101.*

*Not open to students with credit for General Studies (432).*

Continuation of 101. *Harris.*

#### 111 General Physics: Mechanics and Heat U 5

(411) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: Eligibility for Math. 150.*

*Dickey.*

#### 112 General Physics: Electricity, Magnetism, and Light U 5

(412) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 111.*

*Erickson.*

#### 113 General Physics: Modern Physics U 5

(413) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 112.*

*Dickey.*

#### 120 Descriptive Meteorology U 5

(420) *Sp. 4 cl., 1 2-hr. lab.*

Descriptive treatment of local weather phenomena and commonly observed weather changes; laboratory includes instrumental observations, use of meteorological data, study of weather maps. *J. Shaw.*

#### 231 General Physics for Engineers and Physical Scientists: Mechanics U 5

(531) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 1 entrance unit of Physics or 111, concur. Math. 152.*

*Not open to students with credit for (431).*

*Heer.*

#### 232 General Physics for Engineers and Physical Scientists: Heat, Sound, Light U 5

(532) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 231 and Math. 152.*

*Not open to students with credit for (432).*

*Heer.*

#### 233 General Physics for Engineers and Physical Scientists: Electricity, Magnetism U 5

(533) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 231 and Math. 152.*

*Not open to students with credit for (433).*

*Heer.*

#### 435 Intermediate Geometrical Optics U 3

(505) *W. 3 cl.*

*Prereq.: 111, 112, 113 and Math. 151.*

*Not open to students with credit for 535.*

Ray optics of thick lenses, mirrors, prisms, and their combination; apertures and aberrations. *Nielsen.*

#### 436 Intermediate Physical Optics U 3

(506) *Sp. 3 cl.*

*Prereq.: 111, 112, 113 and Math. 151.*

*Not open to students with credit for 636.*

Wave theory of optical phenomena; applications. *Nielsen.*

**437 Geometrical Optics Laboratory U 2**(535) *W.* 1 4-hr. lab.*Prereq. or concur.: 435 or 535.**Not open to students with credit for (635).*Selected experiments in geometrical optics. *Dickey.***438 Physical Optics Laboratory U 2**(536) *Sp.* 1 4-hr. lab.*Prereq. or concur.: 436 or 636.**Not open to students with credit for (636).*Selected experiments in physical optics. *Dickey.***472 Concepts and Methods of Modern Physics U 5**(602) *W, Sp.* 5 cl.*Prereq.: 232-233 and Math. (598) or 254.**Not open to Physics majors and students with credit for 551.*Introductory analytical treatment of concepts and methods of modern Physics including topics from nuclear, atomic, molecular or solid state Physics; quantum-mechanical concepts. *Heer.***501 Descriptive Acoustics U G 3**(645) *A.* 3 cl.*Prereq.: Junior standing in Music, Speech, or Science Educ.**Not open to Physics majors.*Descriptive non-mathematical treatment of acoustics with applications to music and speech including: sources, propagation, reception, characteristics of sound; room acoustics; hearing; apparatus. *Shaw, Shaffer.***503\* General Meteorology U G 3**(643) *W.* 3 cl.*Prereq.: 15 cr. hrs. of natural science including one of following: Agron. 240, Bot. 101, Geog. 240, Geol. (402), Physics 112 or 232, Zool. (402).*Study of atmospheric phenomena. Individual observation and prediction of weather events. *J. Shaw.***506 Basic Principles and Recent Advances in Physics U G 5**(641) *Sp.**Prereq.: Academic Year Science Institute students only.*Primarily for high school physics teachers; a unified treatment of concepts and principles of classical physics together with selected topics in contemporary physics. *Riley.***507 Physics Seminar for In-Service Science Teachers U G 3**(637) *A.* 1 3-hr. cl.*Prereq.: 15 cr. hrs. of Physics and teaching experience; permission of instructor.*A course to deepen teachers' understanding of basic physical concepts and methods of treatment of selected problems. Presentation will include lectures, discussions, demonstrations, and problem solving. *Riley.***508 Physics Seminar for In-Service Science Teachers U G 3**(638) *W.* 1 3-hr. cl.*Prereq.: 507.*

Continuation of 507.

**509 Physics Seminar for In-Service Science Teachers U G 3**(639) *Sp.* 1 3-hr. cl.*Prereq.: 508.*

Continuation of 508.

**514 Fundamentals of Radioactivity and Instrumentation U G 4**(634) *A.* 3 lec.; 1 3-hr. lab.*Prereq.: 2 qtrs. of college Physics or Chem. and 20 cr. hrs. of biological science or permission of instructor.**Not open to students majoring in Chem., Engr., or Physics.*Descriptive treatment of atomic and nuclear structure; physical properties of radioactive nuclei; instrumentation; radiation hazards and safety; introduction to applications of radioactivity. *Pool.***516 Intermediate Physics Laboratory U G 3***A, W, Sp.* 2 3-hr. labs.*Prereq.: 112-113 or 232-233 and Math. 150.**Repeatable to a maximum of 9 cr. hrs.**Not open for graduate credit to students majoring in Physics.*Selected intermediate level experiments from basic areas of Physics. *C. Shaw, Jossem.***GENERAL PREREQUISITES FOR COURSES  
NUMBERED 520 TO 599**

Unless otherwise indicated, Physics 231-232-233 and Math. 254, or equiv.; not open for graduate credit to Physics majors.

**521 Intermediate Physical Mechanics U G 3**(601) *A, W, Sp.* 3 cl.*Not open for graduate credit to Physics majors.*Analytical treatment of vectors; kinematics and dynamics of particles; force fields; simple harmonic oscillator and modifications; emphasis on analytical methods used in other physics courses. *Shaffer.***531 Intermediate Electricity and Magnetism U G 3**(603) *W, Sp.* 3 cl.*Prereq.: 521.**Not open for graduate credit to Physics majors.*Intermediate mathematical treatment of electric and magnetic fields; problem solving emphasized. *Dickey.***535 Geometrical Optics U G 3**(605) *A.* 3 cl.Advanced theory of geometrical optics including thick lenses, types of mirrors, combinations of lenses and mirrors, apertures and aberrations in optical systems. *Sanderson.***541 Intermediate Heat U G 3**(603) *A, Sp.* 3 cl.*Not open for graduate credit to Physics majors.*Introduction to theory of heat with applications. *Erickson.***551 Introduction to Modern Physics U G 3**(614) *A, W, Sp.* 3 cl.*Not open to students with credit for 472.*Intermediate mathematical treatment, including: fundamental particles; qualitative concepts of quantum theory and their history; emission and absorption processes; atomic and molecular structure. *Nielsen.*



**571 Introduction to Nuclear Physics U G 3**

(615) A, W, Sp. 3 cl.

Prereq.: 521 and 551 or equiv.

Not open for graduate credit to Physics majors.

Properties of the atomic nucleus; disintegration processes; particles and photon emission; fission; fusion. Detection techniques for nuclear radiations. Energy levels and selection rules. *Hausman.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600-699**

Unless otherwise stated, 521, 531, and two of 535, 541, or 551, plus Math. 255 or 556, or equiv.

**616 Advanced Physical Laboratory U G 3**

A, W, Sp. 2 3-hr. labs.

Prereq.: 521, 531, and one of 535, 541, 551, 571.

Repeatable to a maximum of 24 cr. hrs.

Experiments selected from: acoustics; atomic physics; electricity, magnetism; electron physics; electronics; heat, thermodynamics; nuclear physics; optics; solid state; spectroscopy; X-rays. Independent work emphasized. *Jossem, C. Shaw.*

**621 Methods of Theoretical Physics U G 3**

(726) A. 3 cl.

Analytical course coordinating methods of dynamics of particles and systems of particles, electrical circuits, wave motion, etc.; preparation for quantum mechanics. *Bell.*

**624\* Wave Motion and Sound U G 3**

(709) A. 3 cl.

Prereq.: 521 and Math. 556.

Theory of wave motion; production, propagation and detection of sound waves; measurements and applications. *C. Shaw.*

**632 Periodic and Transient Electric U G 3  
Currents**

(612) Sp. 3 cl.

Prereq.: 521.

Study of response of circuits with constant parameters to both constant and variable voltages; electronic circuits and instruments used in physical research. *Dickey.*

**636 Introductory Physical Optics U G 3**

(606) W. 3 cl.

Introduction to diffraction; interference; and polarization phenomena. Applications in design and performance of optical instruments. *Bell.*

**651†\* Physics of the Upper U G 3  
Atmosphere**

(648) A. 3 cl.

Prereq.: 521.

The structure of the upper atmosphere as obtained from studies of the ionosphere, ozonosphere, aurorae, meteors, and use of rockets. *J. Shaw.*

**661 Electron Physics U G 3**

(610) W, Sp. 3 cl.

Prereq.: 521 and 551 or equiv.

Physical phenomena and elementary theory of solids; binding and energy bands of solids; electrical, thermal and magnetic properties of metals and semi-conductors. *Heer, Erickson.*

**693 Individual Studies in Physics U G 1-15**

(701) A, W, Sp.

Prereq.: Satisfactory advanced courses in experimental and theoretical physics and permission of instructor.

Repeatable.

A course designed to give a properly qualified student opportunity for independent reading, study, or lab. work in a specialized field of interest.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700-799**

Prerequisites include 15 cr. hrs. in courses 521-689; plus Math. 550 and 255 or 556, plus stated additional requirements, or equivalents.

**715†\* Analysis of Physical U G 3  
Measurements**

(730) A. 3 cl.

Prereq.: 521, 551, and 6 hrs. of advanced lab.

Nature of physical measurements; types of data and their analytical treatment; curve fitting; errors; applications of analytical methods to typical physical problems. *C. Nielsen.*

**717 Nucleonic Measurements and U G 3  
Instrumentation**

(733) A, Sp. 2 3-hr. lab.

Prereq.: 571 and permission of instructor.

Not open to students with credit for (633).

Repeatable to a maximum of 6 cr. hrs.

Nuclear measurements from the latest types of nuclear instruments; characteristic radiations of numerous radioactive sources. The neutron experiments center around a subcritical reactor. *Pool.*

**718 Nuclear Reactor Laboratory U G 3**

(734) W. 2 3-hr. labs.

Prereq.: 717, 773 and permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

Neutron diffusion, neutron shielding, radioactivity production, pile oscillation, reactor control, buckling and other pile parameters; critical reactor will be operated by student. *Pool.*

**721 Introduction to Theoretical U G 3  
Physics**

(740) A. 3 cl.

Prereq.: 521 and Math. 550.

Fundamentals of classical mechanics including transformation of reference frames; dynamics of particles and collections; rigid rotators; Hamilton's principle; Lagrange's equations; vibration theory; special relativity; elasticity; fluid dynamics; wave motion. *Shaffer.*

**722 Introduction to Theoretical U G 3  
Physics**

(741) W. 3 cl.

Prereq.: 721.

Continuation of 721.

**723 Introduction to Theoretical U G 3  
Physics**

(742) Sp. 3 cl.

Prereq.: 722.

Continuation of 722.

**727 Methods of Quantum Mechanics I U G 3***W. 3 cl.**Prereq.: 521, 551, and 621 or equiv.*

Introduction to Schrodinger and matrix techniques of quantum mechanics; perturbation methods; resonance; application to simple problems. *Bell.*

**728 Methods of Quantum Mechanics II U G 3***Sp. 3 cl.**Prereq.: 727.*

Continuation of 727 with applications to more complicated problems; quantum mechanics of atoms and molecules; approximate methods. *Bell.*

**733 Fundamentals of Electricity and Magnetism U G 3***(712) A. 3 cl.**Prereq.: 521, 531, Math. 551.*

Mathematical theory of classical electricity and magnetism. *Brown.*

**734 Electromagnetic Field Phenomena U G 3***(713) W. 3 cl.**Prereq.: 521, 733 and Math. 556.*

An introductory course in Maxwell's theory of the electromagnetic field. *Brown.*

**735 Electromagnetic Theory of Light U G 3***(714) Sp. 3 cl.**Prereq.: 636 and 734.*

Mathematical treatment of physical optics. *Brown.*

**742 Kinetic Theory of Gases U G 3***(702) Sp. 3 cl.**Prereq.: 541, and Math. 550 and 556.*

Introduction to kinetic theory of gases with applications to physical systems. *Mate.*

**743 Thermodynamics U G 3***(703) A. 3 cl.**Prereq.: 541 and Math. 550 and 556.**Not open to students with credit for (803), (804).*

Modern treatment of topics in physical thermodynamics including entropy, specific heats, third law, phase, and lattice changes, surface phenomena; applications to low temperature phenomena. *Edwards.*

**744 Thermodynamics U G 3***(704) W. 3 cl.**Prereq.: 743.*

Continuation of 743.

**751 Modern Atomic Spectroscopy U G 3***(718) A. 3 cl.**Prereq.: 521, 551.*

Modern theory of structure of the atom and quantum-mechanical treatment of origin of atomic spectra. *Rao.*

**753 X-ray Physics U G 3***(720) W. 3 cl.**Prereq.: 751.*

Modern theory and experiment in X-ray emission, absorption, scattering, dispersion; application to solid state and nuclear physics. *C. Shaw, Jossem.*

**757 Spectra and Structure of Molecules U G 3***(719) Sp. 3 cl.**Prereq.: 521 and 551.*

Experimental methods and theory of molecular spectra; relation of spectra to molecular structure. *Rao.*

**761 Introduction to Theory of Solids U G 3***(716) Sp. 3 cl.**Prereq.: 661.*

Fundamental properties of solids with emphasis on conduction in metals and semiconductors. *C. Shaw.*

**771 Fundamentals of Nuclear Physics U G 3***(721) W. 3 cl.**Prereq.: 751.*

Topics in nuclear research; beta decay, shell structure, internal conversion, resonance, scattering, elementary particles, angular correlation, collision dynamics. Concurrent course in quantum mechanics recommended. *Jastram.*

**773 Nuclear Reactors and Neutron Physics U G 3***(723) Sp. 3 cl.**Prereq.: 571 and 742.*

Neutron sources; scattering and capture of neutrons; nuclear fission; resonance phenomena; material damage; diffusion; power production. *Pool.*

**775\* Physics of Ionized Gases U G 3***(711) Sp. 3 cl.**Prereq.: 531 and 742.*

Elementary processes and collective behavior in plasmas; analysis of ion orbits, many-particle systems, oscillations and stability; cosmic phenomena, laboratory plasmas, and the thermonuclear problem. *C. Nielsen.*

**801 Seminar in Physics G 1***(881) A, W, Sp.**Prereq.: Acceptable specialized courses and permission of instructor.**Repeatable.*

Seminars will be conducted by various members of the staff on topics of current interest in their fields of specialization. Students will participate in the presentation and discussion of material.

**816 Topics in Physics G 3-5***A, W, Sp. Hrs. as arr.**Prereq.: 616 or equiv. and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Laboratory and/or theoretical work on an individual basis on topics of current interest.

**821 Advanced Dynamics G 3***(840) A. 3 cl.**Prereq.: 723 and Math. 551.*

Starts with Lagrange's equation and includes variational theorems, Hamilton's canonical equations, general transformation theory. *Mills.*



**822 Advanced Dynamics G 3**

(841) Sp. 3 cl.

Prereq.: 821.

Continuation of 821. Selected topics in advanced dynamics.

**827 Quantum Mechanics G 3**

(817) A. 3 cl.

Prereq.: 751, Math. 550 and 556, Physics 727 and 721.

Advanced fundamental course including: physical bases; Schrodinger, matrix and operational formulations; approximate methods; transformation theory; relativistic modifications; hole theory, etc. *Mulligan*.**828 Quantum Mechanics G 3**

(818) W. 3 cl.

Prereq.: 827.

Continuation of 827.

**829 Quantum Mechanics G 3**

(819) Sp. 3 cl.

Prereq.: 828.

Continuation of 828.

**834 Electromagnetic Field Theory G 3**

(805) W. 3 cl.

Prereq.: 734 and Math. 602.

Electro- and magnetic-statics; Maxwell's theory of electrodynamics; general classical theory of emission, propagation, and absorption of electromagnetic waves; boundary value problems; relativistic electrodynamics. *Prebus*.**835 Electromagnetic Field Theory G 3**

(806) Sp. 3 cl.

Prereq.: 834.

Continuation of 834.

**847 Statistical Mechanics G 3**

(824) W. 3 cl.

Prereq.: 742, 727 or 828 and 721.

Advanced treatment of fundamentals of classical and quantum statistical mechanics with application to contemporary problems. *Mills*.**848 Statistical Mechanics G 3**

(825) Sp. 3 cl.

Prereq.: 847.

Continuation of 847. *Korringa*.**850\* Line Spectra and Atomic Structure G 3**

(813) A. 3 cl.

Prereq.: 751, 727 or 828.

Advanced treatment of theory and interpretation of atomic spectra including contemporary problems. *Heer*.**857†\* Advanced Molecular Spectra I G 3**

(851) A. 3 cl.

Prereq.: 751, 757, and 728.

Advanced treatment of topics in theory and interpretation of electronic, vibration, rotational aspects of molecular spectra; emphasis on details of rotation-vibration spectra of polyatomic molecules. *H. Nielsen*.**858†\* Advanced Molecular Spectra II G 3**

(852) W. 3 cl.

Prereq.: 857.

Continuation of 857.

**863\* Theory of the Solid State I G 3**

(833) W. 3 cl.

Prereq.: 761, 728 or 828, and Math. 620.

Modern theory of solid state including: classification of solids and theory of such physical properties as cohesion, specific heat, conductivity, and magnetism. *Korringa*.**864\* Theory of the Solid State II G 3**

(834) Sp. 3 cl.

Prereq.: 863.

Continuation of 863.

**871\* Theoretical Nuclear Physics I G 3**

(820) A. 3 cl.

Prereq.: 771 and 728 or 828.

Properties of nuclei; two-body problem; complex nuclei; interaction of radiation with nuclei; reaction theory; Beta-decay; meson theory, and mesons; extremely high energy physics. *Seyler*.**872\* Theoretical Nuclear Physics II G 3**

(821) W. 3 cl.

Prereq.: 871.

Continuation of 871.

**873\* Theoretical Nuclear Physics III G 3**

(822) Sp. 3 cl.

Prereq.: 872.

Continuation of 872.

**875†\* Nuclear Spectroscopy G 3**

(823) Sp. 3 cl.

Prereq.: 751, 727, 728 or 828.

Advanced treatment of theory and interpretation of various aspects of nuclear spectroscopy including current topics. *Jastram*.**876† Physics of Elementary Particles I G 3**

(846) A. 3 cl.

Prereq.: 771 and 829.

Properties of elementary particles; theory of strong and weak interactions. *Romanowski*.**877† Physics of Elementary Particles II G 3**

(847) W. 3 cl.

Prereq.: 876.

Continuation of 876.

**880 Advanced Topics in Physics G 3**

(860) A. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

An advanced treatment of some field of physics of current interest not presently covered in other courses. Topic to be announced for each quarter.

**881 Advanced Topics in Physics G 3**

(861) W. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

Topic to be announced for each quarter.

**882 Advanced Topics in Physics G 3**

(862) Sp. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

Topic to be announced for each quarter.

**885†\* Theory of Quantized Fields I G 3**  
(843) A. 3 cl.*Prereq.: 829 and 821.*

The concepts and methods of quantum field theory, both as a fundamental description of physical interactions and as a method for use in certain relativistic problems. *Mills.*

**886†\* Theory of Quantized Fields II G 3**  
(844) W. 3 cl.*Prereq.: 885.*

Continuation of 885.

**999 Research in Physics G Arr.**  
(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Physiological Chemistry

*Office: 214 Hamilton Hall, 1645 Neil Avenue.*

PROFESSORS †CORNWELL (Chairman), BROWN (Emeritus), †JOHNSON, †KRUGER, and SMITH (Emeritus); ASSOCIATE PROFESSORS †ALLEN, †BRIERLEY, †DEVOR, †ENDAHL, †McCLUER, †RICHARDSON, †RIESKE, and †WIKOFF; ASSISTANT PROFESSORS †ADDANKI, †ALBEN, BIAGI, †FISCHER, †GRUEMER, †ITO, †MEROLA, †NUENKE, †SPRECHER, and †STONER.

**311 Physiological Chemistry**

*Prereq.: Chem. 102 or 122 and enrollment in a program of the School of Allied Medical Services or permission of instructor.*

*Students may not receive credit for both .01 and .02.*

Human biochemistry with emphasis on metabolism and applications to clinical chemistry and human nutrition; pertinent organic chemistry will be included. Laboratory to illustrate general techniques with emphasis on food composition.

**.01 Lecture and Lab U 5**  
A. 3 cl., 1 3-hr. lab.**.02 Lecture U 4**  
A. 3 cl.**312 Physiological Chemistry**

*Students may not receive credit for both .01 and .02.*

A continuation of 311.

**.01 Lecture and Lab U 5**  
W. 3 cl., 1 3-hr. lab.  
*Prereq.: 311.01.***.02 Lecture U 4**  
W. 3 cl.  
*Prereq.: 311.02.***540 Physiological Chemistry P 6**  
(832) Sp. 4 cl., 2 3-hr. lab.*Prereq.: Dent. 1st yr. standing, Chem. 231, 232.*

Chemistry of the carbohydrates, lipids, and proteins. Biochemistry of digestion, absorption, metabolism, and excretion. The tissues. *Devor, Wikoff and Staff.*

**545 Physiological Chemistry P 2**  
(633) A. 2 cl.*Prereq.: Dent. 1st yr. standing, 540.*

The elements of human nutrition with a special emphasis on the relation of diet to dentistry. *Richardson and Staff.*

**601 Physiological Chemistry P 8**  
A. 150 cl. or lab. hrs.*Prereq.: Med. 1st yr. standing.*

Chemistry of carbohydrates, lipids, and proteins. Biochemistry of human digestion, nutrition, metabolism and excretion. Correlations between normal human metabolism and the biochemistry and genetic control of disease processes. *Cornwell, Richardson, Nuenke and Staff.*

**602 Physiological Chemistry P 4**  
W. 75 cl. or lab. hrs.*Prereq.: 601.*

Continuation of 601. Experimental studies in biochemical control mechanisms in normal and pathological states including nutritional deficiencies.

**611 Physiological Chemistry U G 5**  
A. 3 cl., 2 3-hr. lab.*Prereq.: Chem. 211, 212, 531, 532, 535, 536, or 541, 542, 543, 545, 546, 660 or equiv.*

Chemistry of carbohydrates, lipids, and proteins. *Rieske, Merola, Sprecher and Staff.*

**612 Physiological Chemistry U G 5**  
W. 3 cl., 2 3-hr. lab.*Prereq.: 611.*

Biochemistry of digestion, metabolism, and excretion. *Rieske, Merola, Sprecher and Staff.*

**613 Physiological Chemistry U G 5**  
(603) Sp. 3 cl., 2 3-hr. lab.*Prereq.: 612.*

Intermediary metabolism, specialized tissues, blood and other body fluids. *Rieske, Merola, Sprecher and Staff.*

**706 A Biochemical Approach to the P 6**  
**Study of Disease***(720) 1 month; Jan., May.**Prereq.: Med. 3rd or 4th yr. standing.*

Subcellular organization, model systems in disease, injury and inflammation, toxic agents, deficiency states, genes, enzymes and disease, biochemical changes in growth. *Kruger.*

**725 Biochemical Biography U G 1**  
(715) Sp. 1 cl.*Prereq.: 612.**Wikoff.***734 Biochemical Methods of Analysis (Food Analysis) U G 5***(614) W. 2 cl., 3 3-hr. lab.**Prereq.: 611 or equiv.*

The quantitative analysis of the proteins, fats, and carbohydrates. Special methods for the analysis of biological materials. *Devor and Staff.*



**793 Individual Studies in Physiological Chemistry**

3 or 4 months, all months. P 6, 12, 18, 24  
 Su, A, W, Sp. G 2-15  
 Prereq.: 602, 612 or equiv. and permission of instructor.  
 Graduate credit repeatable to a maximum of 15 cr. hrs.

Qualified students may avail themselves of the facilities of the department for conducting a minor investigation under the direction of a senior staff member.

**821 Advanced Physiological Chemistry G 3**  
 A. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 831, 832, 833 or permission of instructor.

An advanced treatment of the chemistry of the carbohydrates, proteins, and steroids. Alben, Brierley, and Staff.

**822 Advanced Physiological Chemistry G 3**  
 W. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 831, 832, 833 or permission of instructor.

An advanced treatment of the chemistry of the lipids, and intermediary metabolism. Cornwell and Staff.

**823 Advanced Physiological Chemistry G 3**  
 Sp. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 831, 832, 833 or permission of instructor.

Continuation of the biochemistry of intermediary metabolism. Richardson and Staff.

**830 Physical Methods in Biochemistry G 3**  
 (702) W. 2 cl., 1 3-hr. lab.

Prereq.: 821, Physical Chem., or permission of instructor.

A practical and theoretical introduction to the use of the analytical ultracentrifuge, Tiselius electrophoresis, spectroscopy, chromatography and radioisotopes. Alben and Staff.

**835 Biochemical Preparations and Techniques G 3**

(825) A. 9 hrs. conf. and lab.  
 Prereq.: 821, 822 or concur.

Advanced course in biological preparations and laboratory techniques. Isolation of carbohydrates, lipids, proteins, enzymes, and hormones. Staff.

**850 Seminar G 1**  
 (815) Su, A, W. 1 cl.

Prereq. or concur.: 601 or 611 or equiv.  
 Repeatable to a maximum of 9 cr hrs.  
 Required of all graduate students majoring in Physiol. Chem. Cornwell and Staff.

**855 Seminar in Physiological Chemistry G 2**

(812) Su, A, W, Sp.  
 Repeatable to a maximum of 8 cr. hrs.  
 Topic to be announced.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.  
 (See Interdepartmental Seminars.)

**999 Research in Physiological Chemistry G Arr.**

(950)  
 Research for thesis or dissertation purposes only. To be conducted under the guidance of Addanki, Alben, Allen, Brierley, Brown, Cornwell, Devor, Endahl, Fischer, Ito, Johnson, Kruger, McCluer, Merola, Nuenke, Pinto, Richardson, Rieske, Sprecher, Wikoff.

## Physiological Optics

Office: 111 Optometry Building, 338 West 10th Avenue.  
 ASSOCIATE PROFESSOR THEBBARD (Chairman);  
 PROFESSORS BLACKWELL and FRY; ASSOCIATE  
 PROFESSORS HILL, McCONNELL, SMITH, and  
 WILD; ASSISTANT PROFESSORS BAILEY, ESK-  
 RIDGE, HAINES (Emeritus), MILLER, MOTE, and  
 REESE.

**511 Introduction to Physiological Optics I U G 5**

(611) Sp. 4 cl., 1 2-hr. lab.

Prereq.: Physics 435 and Anat. 608.

Not for grad. credit to students majoring in Physiol. Opt.

The eye as an optical instrument; the refracting mechanism; the mechanism of accommodation and pupillary contraction; blur of the retinal image; stray light in the eye.

**512 Introduction to Physiological Optics II U G 5**

(612) A. 4 cl., 1 2-hr. lab.

Prereq.: 511.

Not for grad. credit to students majoring in Physiol. Opt.

The motility of the eye; the structure and innervation of the extraocular muscles, the center of rotation and analysis and description of eye movements. Eskridge.

**520 Measurement and Specification of Visual Stimuli U G 4**

(620) W. 3 cl., 1 2-hr. lab.

Prereq.: Optom. 2nd yr. standing and 511.

Not for grad. credit to students majoring in Physiol. Opt.

Light sources: diffusely transmitting and reflecting surfaces and scattering of light by a medium; principles of photometry and colorimetry as applied to visual stimuli.

**613 Intermediate Physiological Optics I U G 5**

W. 4 cl., 1 2-hr. lab.

Prereq.: 512.

Monocular sensory mechanisms of vision; analysis and specification of visual stimuli; photoreception and retino-cortical transmission; adaptation of photoreceptors; flicker; brightness discrimination; and color-vision. King.

- 614 Intermediate Physiological Optics II**      **U G 3**  
*A. 3 cl.*  
*Prereq.: 512.*

Circulation and metabolism of the eye; intra-ocular pressure; lacrimal system; movements and functions of the eyelids. *Hill.*

- 693 Individual Studies in Physiological Optics**      **U G 1-15**  
*(701) A, W, Sp.*  
*Prereq.: Permission of department chairman.*  
*Repeatable to a maximum of 15 cr. hrs.*

A properly qualified student may perform a minor investigation or add to his knowledge and technique.

- 715 Intermediate Physiological Optics III**      **U G 5**  
*Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: Optom. 2nd yr. standing and 613.*

Projection of visual impressions; the horopter, retinal correspondence; binocular integration of hue and brilliance. *Eskridge.*

- 716 Intermediate Physiological Optics IV**      **U G 5**  
*W. 3 cl., 1 2-hr. lab.*  
*Prereq.: 715.*

Visual perception of color, illumination, figure-ground relations, size, shape, direction, distance, motion, time and complex patterns. *Fry.*

- 730 Principles of Lighting**      **U G 5**  
*A. 4 cl., 1 2-hr. lab.*  
*Prereq.: 716.*

The effect of the distribution of light in a given environment upon efficiency, comfort, and safety; selection and arrangement of sources and light control. *Fry.*

- 731 Vision in Industry**      **U G 5**  
*W. 5 cl.*  
*Prereq.: 730.*

Visual testing in industry; relation of vision to performing a task; visual requirements for licenses; eye hazards and protection; compensation for loss of vision. *Bailey, Kerr.*

- 732 Vision in Schools**      **U G 5**  
*Sp. 3 cl., 6 hr. lab.*  
*Prereq.: 730.*

Visual survey methods; the prevalence of visual anomalies and eye diseases in children; basic visual skills required in school and methods for their improvement. *Bailey, Kerr.*

- 795 Seminar**      **U G 1-3**  
*A, W, Sp. 1-3 cl.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

A series of seminars dealing with new developments in the various phases of physiological optics.

- 801 Advanced Physiological Optics I**      **G 5**  
*A. 3 cl., 2 2-hr. lab.*  
*Prereq.: 716.*

The ocular image-forming mechanism; accommodation and pupil contraction, aberrations, stray light entopic phenomena; shape, size, distortion; retinal illuminance and blur. *Fry.*

- 802 Advanced Physiological Optics II**      **G 5**  
*W. 3 cl., 2 2-hr. lab.*  
*Prereq.: 801.*

Fixation disparity; photochemistry and electrophysiology of photo-receptors; luminosity; color-mixture; retinal-cortical transmission; simultaneous contrast; visibility; adaptation; after images. *Fry.*

- 803 Advanced Physiological Optics III**      **G 5**  
*Sp. 3 cl., 2 2-hr. lab.*  
*Prereq.: 802.*

Binocular integration of hue and brilliance, fusional movements fixation, retinal correspondence, visual perception of figure-ground relations, light, color, illumination, size, shape, direction, distance, and motion. *Fry.*

- 810 Image Evaluation**      **G 5**  
*A. 5 cl.*  
*Prereq.: 613, Physics 435 and 436.*

An analysis of the causes of image impairment in the human eye and other optical systems; objective methods of assessing aberrations and blur; methods of image enhancement. *Fry.*

- 811 Mechanisms Subserving Color Vision**      **G 5**  
*W. 5 cl.*  
*Prereq.: 613.*

Theoretical basis for chromatic adaptation, chromatic contrast and induction, color blindness, and other color phenomena; theory of the laws of color mixture. *Fry.*

- 812\* Advanced Neurophysiology of the Visual System**      **G 5**  
*W. 4 cl., 1 2-hr. lab.*  
*Prereq.: 613, 614, 715, and 716.*

The coding and transmission of visual information in the direct and accessory pathways of vertebrates and invertebrates. *Hill.*

- 813†\* Advanced Physiology of the Eye**      **G 5**  
*W. 4 cl., 1 2-hr. lab.*  
*Prereq.: 613 and 614.*

Recent developments in the respiration, metabolism and mechanics of ocular tissues and the aqueous dynamics of the eye. *Hill.*

- 999 Research in Physiological Optics**      **G Arr.**  
*(950) A, W, Sp.*  
 Research for thesis or dissertation purposes only.



## Physiology

Office: 312 Hamilton Hall, 1645 Neil Avenue.

PROFESSORS †LITTLE (Chairman), †ANGERER, †BOZLER, †CALHOON, †GRUBBS, †HIATT, †LESSLER, and †MYERS; ASSOCIATE PROFESSORS †BROWNELL, †LEBRIE, †LIPETZ, †NISHIKAWARA, †PIEPER, †SMITH, †STOW, and †WEISS; ASSISTANT PROFESSORS ALLISON, BEMAN, †BILLINGS, †GROSSIE, †HANSON, †KUNZ, †LIPSKY, †MATHEWS, †MICHAEL, †PAUL, and †TOMASHEFSKI; INSTRUCTORS BLAIR and YAPLE.

For related courses see Biology.

### 110 Introduction to Physiology U 5

(410) A, Sp. 4 cl. 1 2-hr. lab.

Prereq.: 1st or 2nd yr. standing, or permission of instructor.

Not open to students with credit for 311, 312.

The organization and function of the body with consideration of the various organ systems.

### 311 Principles of Human Physiology U 5

(506) A, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 1 qtr. Chem., Anat. 200 or Zool. 191.

Credit not given for 311 without 312.

Not open to students with credit for 110, 421, or 422.

The concepts and principles involved in the activities of muscles and nerves; central and peripheral nervous system including sense organs; secretion; digestion and motility of digestive tract; and energy and food metabolism. Angerer & Staff.

### 312 Principles of Human Physiology U 5

(507) Su, W. 4 cl., 1 2-hr. lab.

Not open to students with credit for 110, 421, or 422.

Continuation of 311. The concepts and principles involved in the functions of body fluids (blood, interstitial, cerebrospinal), heart and blood vessels, respiration, acid-base mechanisms, kidney and sweat glands, control of body temperature and integrative action of the endocrine organs. Angerer & Staff.

### 510 Principles of Physiology U G 5

(652) Su. 3 cl., 2 2-hr. lab.

Prereq.: Academic Year Science Institute students only, 15 hrs. Biol. Sc., 15 hrs. Chem., and/or Physics, and permission of instructor.

Not for credit to graduate students majoring in Physiol.

The nature and behavior of living organisms and their relationship to their environment with special consideration of the functions of vertebrate organ systems.

### 516 Advanced Mammalian Physiology U G 5

(801) A. 4 cl., 1 lab.

Prereq.: Inorganic and Organic Chem., Physics 111, 112, 113 or equiv., and 1 yr. Biol. Sc. or permission of instructor.

Advanced physiology of muscle, nerve, central nervous system, special senses, digestion, and metabolism.

### 517 Advanced Mammalian Physiology U G 5

(602) W. 4 cl., 1 lab.

Prereq.: Inorganic and Organic Chem., Physics 111, 112, 113 or equiv., and 1 yr. Biol. Sc. or permission of instructor.

Not for graduate credit to students majoring in Physiol.

Continuation of 516. Advanced physiology of body fluids and excretion, circulation, respiration, body temperature regulation, and endocrines.

### 604 Advanced Physiology P G 6

A. 4 cl., 2 lab.

Prereq.: Dent. 2nd yr. standing.

The cardiovascular system including blood, neuromuscular system, body fluids and excretion. Lipsky & Staff.

### 605 Advanced Physiology P G 6

W. 5 cl., 1 lab.

Prereq.: Dent. 2nd yr. standing and 604 or equiv.

The central nervous system and special senses, respiration, digestion, metabolism, the endocrines, and reproduction. Continuation of 604. Lipsky & Staff.

### 623 Cellular and Comparative Physiology U G 5

A. 4 cl., 1 lab.

Prereq.: Bot. 100, 101 or Zool. 101 or equiv., Chem. 231, 232 or 531, 532 or equiv., Physics 111, 112, 113 or equiv., Math. 101, 109, 110, or 116, 117 or equiv., and permission of instructor.

Interactions between cells and environment in cell division, differentiation, senescence, and death; the regulation and control of cellular function. Lesler.

### 630 Endocrinology U G 5

Sp. 4 cl., 1 lab.

Prereq.: 311 and 312, organic chem. and permission of instructor.

A study of the functions of the thyroid, parathyroid, pituitary, adrenal, pancreas, gonads, and other organs with possible endocrine function. Brownell, Nishikawara and Staff.

### 635 Human Physiology P G 6

W. 5 cl., and labs.

Prereq.: Med. 1st yr. standing.

Neuromuscular system, reflexes, respirations, and special senses. Little and Staff.

### 636 Human Physiology P G 9

Sp. 5 cl., and labs.

Prereq.: 635.

Cardiovascular system, digestion, kidney, endocrine system, and central nervous system. Continuation of 635. Little & Staff.

### 645†\* Principles of Biophysics U G 3

A. 3 cl.

Prereq.: 311, 312 Elem. Physiol. or equiv. and 1 yr. of college Physics or permission of instructor.

A study of physical systems in relation to biological phenomena, with specific illustrations in the application of mechanics, heat, light, sound, electricity, hydraulics, etc.

**646 Radiation Biophysics U G 5**

A. 5 cl.

Prereq.: 1 yr. each of college Biol., Math., Physics, and Physiol., and Physiol. Chem. 601, 602 or 611, 612 or equiv., and permission of instructor.

Stable and radioactive isotopes; biological effects of ionizing radiation. *Myers and Staff.***648 Physical Instrumentation for Biologists U G 3**

A. 1 cl., 2 lab.

Prereq.: Elem. Physiol. and 1 yr. college Physics or permission of instructor.

The theory and practical application of physical instruments used in biological studies, including elementary electronics. *Stow.***793 Individual Studies in Physiology U P G 3-18**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Reading, conferences, laboratory work by individual arrangement with qualified students who desire more intensive and specialized study than is available in other courses.

**807 Advanced Studies in Physiology G 3 or 5**

Su, A, W, Sp.

Prereq.: 516 and 517 or equiv.

Quarter schedule of topics to be announced.

- .01 Neuromuscular System. *Bozler.*
- .02 Cardiovascular and Renal Physiology. *Little, Calhoun, Pieper.*
- .03 Aviation Physiology and Respiration. *Hiatt, Smith.*
- .04 Digestion and Metabolism. *Grubbs, Beman.*
- .05 Physico-Chemical (General) Physiology. *Angerer, Lessler.*
- .06 Biophysics. *Stow.*
- .07 Endocrinology. *Nishikawara, Brownell.*
- .08 Sensory Electrophysiology. *Lipetz.*

**825 Advanced Human Physiology G 6**

(725) W. 5 cl., and labs.

Prereq.: Graduate standing in Physiol., permission of Department Chairman.

Systematic study of the basic mammalian organ systems and their interactions will be presented. *Little and Staff.***826 Advanced Human Physiology G 9**

(726) Sp. 5 cl., and labs.

Continuation of 825. *Little and Staff.***828 Advanced Cellular and General Physiology G 5**

Sp. 4 cl., 1 3-hr. lab. arr.

Prereq.: Chem. 571 or equiv., Physics 112 or equiv.

Physiol. 623 or Biol. 640, Physiol. Chem. 611, 612 or equiv., permission of instructor.

Current concepts of ultrastructures and their function in various protoplasmic systems: membrane phenomena; excitatory processes; energy utilization in various kinds of cells. *Angerer.***840 Environmental Physiology G 3**

(740) A., W., Sp. 3 cl.

Prereq.: M.D. degree or graduate standing and 825, and 826, or the equiv.

Repeatable to a maximum of 9 cr. hrs.

Study of the effects on man of stress factors in the gaseous, mechanical and electromagnetic environments and a consideration of the physiological aspects of protection against environmental stresses. *Billings, Hiatt, Dines.***850 Seminar in Physiology G 2**

(815) Su, A, W, Sp.

Repeatable to a maximum of 112 cr. hrs.

**999 Research in Physiology G**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Plant Pathology**

Office: Botany &amp; Zoology Building, 1755 Neil Avenue.

PROFESSORS †LEBEN (Acting Chairman), †ALEXANDER, †ALLISON, †SCHMITTHENNER, WILLIAMS and WILSON (Emeritus); ASSOCIATE PROFESSORS †ELLETT and †HERR; ASSISTANT PROFESSORS BRADFUTE, GORDON, †SMITH, and TROXEL.

**470 General Plant Pathology U 5**

(519) A, Sp. 3 cl., 2 2-hr. lab.

Prereq.: Bot. 101 or 102.

An introduction to diseases of plants. *Ellett, Trozel, Smith.***471 Diseases of Ornamentals U 3**

(649) W. 1 1-hr. cl., 2 2-hr. lab.

Prereq.: 470.

A detailed study of important diseases of floral and woody ornamental plants; their cause, distribution, severity, importance, and specific control measures. *Ellett.***670 Plant Pathology U G 5**

(671) W. 3 cl., 2 2-hr. lab.

Prereq.: Bot. 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Not open to students with credit for 470 or 871.

Not open to students majoring in plant pathology.

Representative plant diseases are studied with emphasis on general principles of disease development and control. *Trozel., Ellett.***671 Diseases of Cereal and Forage Crops U G 3**

(651) W. 3 2-hr. cl.

Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.

A detailed study of important cereal and forage crop diseases; their cause, distribution, severity, importance, and specific control measures. *Ellett.*



**672 Diseases of Vegetable Crops U G 3**(652) *Sp. 3 2-hr. cl.**Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.*

A detailed study of important vegetable crop diseases; their cause, distribution, severity, importance, and specific control measures. *Allison.*

**675 Diseases of Fruit Crops U G 3**(650) *A. 3 2-hr. cl.**Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.*

A detailed study of important tree and small fruit crop diseases; their cause, distribution, severity, and specific control measures. *Allison.*

**693 Individual Studies U G 1-5***A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Problems may be selected in the various areas of plant pathology.

**871 Principles of Plant Pathology G 3**(850) *W. 3 2-hr. cl.**Prereq.: 671 or 672 or 675, and 27 additional cr. hrs. in Biol. Sc.*

The basic factors governing the development of plant diseases, including host-parasite relationships, effect of environment on disease development, and the nature of disease resistance. *Allison.*

**872 Bacterial Plant Pathogens G 3**(660) *Sp. 2 cl., 1 2-hr. lab.**Prereq.: 470 or 670, Microbiol. 607, and 20 additional cr. hrs. in Biol. Sc.*

Representative types of bacterial plant diseases and factors affecting their control, severity, distribution, and economic importance. Methods used in studying plant pathogenic bacteria. *Troxel.*

**873 Plant Virus Diseases G 3**(666) *Sp. 2 cl., 1 2-hr. lab.**Prereq.: 470 or 670, and 25 additional cr. hrs. in Biol. Sc.*

A study of representative types of plant virus diseases; factors affecting their control, severity, distribution, and economic importance. Methods used in studying plant viruses. *Troxel.*

**874 Nematode Diseases of Plants G 5**(751) *A. 2 cl., 2 2-hr. lab., several Saturday field trips.**Prereq.: 470 or 670, and 25 additional cr. hrs. in Biol. Sc.*

Bionomics and control methods of representative plant diseases caused by nematodes. Methods used in studying plant parasitic nematodes. *Smith.*

**879 Seminar in Plant Pathology G 2**(815) *A, W, Sp.**Prereq.: Permission of instructor.**Repeatable.**Allison, Ellett, Troxel, Smith.***999 Research****G Arr.***A, W, Sp.*

Research for thesis or dissertation purposes only.

**Polish**

*Office: 316 University Hall, 216 North Oval Drive.*

**601†\* Polish U G 3***A. 3 cl.**Prereq.: Russ. 103 or 112 or permission of instructor.***602†\* Polish U G 3***W. 3 cl.**Prereq.: 601.***603†\* Polish U G 3***Sp. 3 cl.**Prereq.: 602.***604\* Intermediate Polish U G 3***A. 3 cl.**Prereq.: 603 or equiv.**Krzyzanowski.***605\* Intermediate Polish U G 3***W. 3 cl.**Prereq.: 604 or permission of instructor.*

Reading texts of moderate difficulty, conversation, simple compositions. *Krzyzanowski.*

**606\* Intermediate Polish U G 3***Sp. 3 cl.**Prereq.: 605 or permission of instructor.*

Reading from modern Polish literature, practice in writing and speaking. *Krzyzanowski.*

**620\* Polish Literature in English U G 5 Translation***A. 3 cl.*

Polish literature from the Medieval Period to 1864. The Medieval period, renaissance, baroque, classicism, romanticism. Emphasis on Kochanowski, Mickiewicz, Slowacki, Krasinski, Norwid. *Krzyzanowski.*

**621\* Polish Literature in English U G 5 Translation***W. 3 cl.*

Modern Polish literature from 1864 to the present. Emphasis on Positivism, Realism, and Symbolism. Novels of Prus, Sienkiewicz, Zeromski, and Reymont. *Krzyzanowski.*

## Political Science

Office: 100 University Hall, 216 North Oval Drive.

PROFESSORS †HERSON (Chairman), †AUMANN, †CHRISTOPH, HEIMBERGER (Emeritus), †HELMS, MANSFIELD (Emeritus), †ROBINSON, SPENCER, (Emeritus), †SPITZ, and †WALKER; ASSOCIATE PROFESSORS †HALE, †KETTLER, and †NEMZER; ADJUNCT ASSOCIATE PROFESSOR GIBSON (Lima); ASSISTANT PROFESSORS AXLINE, BURGESS, COWARD, †ORBELL, †RAINEY, †RICHARDSON, STEGENGA, and †STEWART.

### 100 American National Government U 5 (401) A, W, Sp. 5 cl.

Not open to students with credit for 265.

Introductory study of constitutional principles (federalism, civil liberty, judicial review); political processes (parties, elections, legislative process); problems of national policy in selected areas of interest.

### 200 Government of the United States U 5 (508) A, W, Sp. 5 cl.

Prereq.: 1 course in Pol. Sc.

Not open to students with credit for 100.

An intermediate study of American national government, primarily for prospective majors in the social sciences, and for pre-law students.

### 205 American State Government U 5 (510) A, W, Sp. 5 cl.

Prereq.: 1 course in Pol. Sc.

A study of the organization and functions of the states and their municipal subdivisions in the United States.

### 225 Foreign Governments and Politics U 5 (509) A, W, Sp. 5 cl.

Prereq.: 1 course in Pol. Sc. or Hist. 123, or Hist. 101-102.

A comparative examination of the governmental systems and political processes of selected European and non-western countries.

### 245 International Tensions U 5 (530) A, W, Sp. 5 cl.

Prereq.: 2nd yr. standing.

Causes of international tensions and conflicts; international security organizations; basic issues in world politics.

### 265 Fundamentals of Government U 5 (507) A, W, Sp. 5 cl.

Prereq.: 123.

Not open to students with credit for 100.

A study of political ideas, institutions, processes and problems, presenting comparatively the leading types of government in the modern world.

### 275 Introduction to Political Science U 5 (599) A, W, Sp. 5 cl.

Not open to students with credit in Pol. Sc.

An introductory study of some important political ideas, institutions, problems and practices, including constitutionalism, democracy, authoritarianism, representation, political parties, and the legislative process.

### 378 Political Decision Making U 5 A. 3 cl., 1 lab.

An introduction to decision-making and policy-making analysis, with emphasis on situational, individual, and organizational factors that explain decision and policy outcomes.

### 505 American Municipal Government U G 5

(607) A. 5 cl.

A study of municipalities in United States, their social significance, governmental structure; and experience with government by council, mayor, commission, and manager.

### 506 Government of Ohio U G 3 (609) W. 3 cl.

Constitution, structure, and functions: the electoral system; finance and personnel; judiciary and law enforcement; organization and conduct of administrative programs; state relations with local governments.

### 520† The National Government and the National Economy U G 3 (618) Sp. 3 cl.

Prereq.: 100 or 265 and 10 cr. hrs. in Econ.

A study of the interaction of economic and political powers illustrated in major contemporary issues of national affairs.

### 540 Latin American Government and Politics U G 5

(627) Sp. 5 cl.

A study of political processes, institutions, and groups in Latin America, with emphasis on constitutional, geographical, social, and economic environment in which they operate.

### 545 Contemporary International Politics U G 5

(613) A, W, Sp. 5 cl.

Political relations among states; methods and goals of diplomacy; current problems in major areas of tension; tendencies toward administrative, judicial, and legislative world-organization.

### 559 Regional Patterns in International Politics: The Far East U G 5

(652A) Sp. 5 cl.

Basic power concepts, political institutions, and international relations of the Far East.

### 560† Regional Patterns in International Politics: The Middle East U G 5

(652B) A. 5 cl.

Basic power concepts, political institutions, and international relations of the Middle East.

### 561† Regional Patterns in International Politics: Central Europe U G 5 (652C) W. 5 cl.

Basic power concepts, political institutions, and international relations of Central Europe.



**562 Regional Patterns in International Politics: Latin America U G 5**

(652D) A. 5 cl.

Basic power concepts, political institutions, and international relations of Latin America.

**563† Regional Patterns in International Politics: Africa U G 5**

(652E) Sp. 5 cl.

Basic power concepts, political institutions, and international relations of Africa.

**565 Introduction to Political Theory U G 5**

(601) A, Sp. 5 cl.

An inquiry into the major problems of political philosophy; the legitimacy of governments, forms and institutions, stability and change, freedom and control of power.

**573 American Political Ideas U G 3**

(624) W. 3 cl.

An analysis of American ideas on law and government, authority and liberty, oligarchy and democracy, from the Puritans to the present day.

**575 American Political Parties and Pressure Groups U G 5**

(635) A, W, Sp. 5 cl.

The organization, programs, and campaign methods of political parties and pressure groups. Methods of nomination, suffrage, qualifications, campaign finance, and the conduct of elections.

**594 Contemporary Political Problems U 5**

(600) A, W, Sp. 5 cl.

Repeatable to a maximum of 10 cr. hrs.

A. Political integration and the new Europe.

W. Democracy and Dictatorship.

Sp. To be announced.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600 AND 700**

Unless otherwise indicated the prerequisites for 600 and 700 courses are two courses in Political Science, or a declared major in another social science, or the consent of the instructor, or the history and social science requirements of the B.A. curriculum.

**601 Presidential Leadership and the Presidency U G 5**

(655) A. 5 cl.

A study of presidential power and responsibility; the roles of the president; the policies of leadership; the presidency as an institution. *Hale.*

**610 Principles of Public Administration I U G 5**

(605) W. 5 cl.

Basic problems of public administration; ends and means; the formulation of policy; organization and management; working methods of control; coordination and responsibility. *Walker.*

**611 Principles of Public Administration II U G 5**

(606) Sp. 4 cl., 1 lab.

Prereq.: 3 courses in Pol. Sc.

An examination of the principles of public administration as applied to the rendering of services to the public by national, state, and local government. *Walker.*

**612† Public Personnel Administration U G 3**

(614) Sp. 3 cl.

Prereq.: 610.

The organization, purposes and activities of civil service agencies; and the conduct of public personnel policies and processes. *Walker.*

**615 Administration of Justice U G 5**

A. 5 cl.

A study of the nature, purposes, and limitations of law as administered through courts. The development, organization, and procedure of our judicial system. Recent trends in legal thinking. *Aumann.*

**616 American Constitutional Law U G 5**

W. 5 cl.

A study of leading constitutional principles in the United States as interpreted by the courts. *Aumann.*

**626 British Government and Politics U G 5**

(625) A. 5 cl.

An analysis of the nature of politics and the conduct of government in contemporary Britain, including the making of foreign policy. *Christoph.*

**627 Government of Western Europe U G 5**

(628) A, Sp. 5 cl.

An examination of the political institutions and processes of France, West Germany, and the European integration movement. *Christoph.*

**630 The Soviet Union U G 5**

(636) A, Sp. 5 cl.

A general study of the Soviet Union; governmental and party institutions; ideology and methods; problems of communist dictatorship. *Nemzer, Stewart.*

**635 The Government and Politics of the Far East U G 5**

(650) W. 5 cl.

Government institutions of China, imperial, republican, and communist. Constitutionalism vs. militarism, occupation reforms, and contemporary politics in Japan. The governments of the nearby east Asian countries. *Richardson.*

**636 Southeast Asia U G 5**

(651) W. 5 cl.

Governments and politics of the Philippines, Indonesia, Indo-China, Malaysia, Thailand, and Burma; contemporary problems of this region in relation to world politics. *Liddle.*

**650 International Law U G 5**

(612) Sp. 5 cl.

A study of the principles of international law. *Rainey, Azline.*

**651 International Organization and Administration U G 5**

(714) W. 5 cl.

An examination of the current system of international organization and its administrative aspects, with emphasis on the operations of the United Nations agencies. *Azline, Stegenga.*

**655 Soviet Foreign Policy U G 5**  
(637) W. 5 cl.

Basic concepts about, and choices in, Soviet foreign policy; development and present patterns of Soviet relations with key nations; major problems in future relationships. *Nemzer, Stewart.*

**656 The United States in World Affairs U G 5**  
(640) A, Sp. 5 cl.

Domestic factors and agencies influencing American foreign policy; basic patterns of recent American relations, especially with the Soviet bloc, Western Europe, and the Middle East. *Rainey, Stegenga.*

**658 International Relations of the Far East U G 5**  
(649) A. 5 cl.

The Far East in contemporary world politics; factors underlying the foreign policies of the nations concerned with this region. *Richardson.*

**668 Introduction to Jurisprudence U G 5**  
(611) A. 5 cl.

A study of the concepts which legal systems develop and of the interests which law protects. Ideas of various schools of juristic thought examined. *Aumann.*

**670 History of Political Theory: I, The Socratic Method U G 5**  
(621) A. 5 cl.

The Socratic revolution in western political philosophy. Its consequences for human thought about man, the state, law, justice, property, power, happiness. *Kettler, Champlin.*

**671 History of Political Theory: II, From Machiavelli to Hegel U G 5**  
(622) W. 5 cl.

A study of representative works by major modern thinkers—including Hobbes, Montesquieu, Rousseau, Kant and Hegel—seen in historical context. *Kettler, Champlin.*

**672 History of Political Theory: III, Contemporary Political Thought U G 5**  
(623) Sp. 5 cl.

An examination of the more important contemporary ideas on the nature of the state; anarchism, syndicalism, communism, fascism, socialism, and democracy. *Spitz, Kettler, Champlin.*

**676 Public Opinion and Political Processes U G 5**  
(634) A, W, Sp. 5 cl.

The formation, organization, and effects of public opinion and propaganda in the modern state. Emphasis on the role of groups in political behavior. *Christoph, Robinson, Orbell.*

**677 Legislation U G 3**  
(633) Sp. 3 cl.

The processes of law-making in the United States, constitutions, statutes, executive ordinances, popular law-making, legislative drafting. *Walker, Robinson.*

**693 Individual Studies in Political Science U G 1-5**

(701) A, W, Sp.

Prereq.: 4th yr. standing and 40 cr. hrs. in social sciences, including 15 cr. hrs. in Pol. Sc.

A special topic is assigned to each student and results are tested by papers and special examinations.

**700 Basic Theories in the Study of American Government and Institutions U G 5**  
W. 3 cl.

Canvass of institutional literature (Congress, Courts, the Presidency); examination of theoretical approaches (interest-group theory; theories of representation, decision-making models; theories of ideology). *Robinson, Hale, Orbell.*

**Introduction to National Security**

(See Nat. Sec. Pol. S. 702.)

**719† Administrative Law U G 3**

(730) W. 1 2-hr. cl.

Prereq.: 610, 611, 616 or equiv.

Powers and processes of administrative agencies; judicial review of administrative action. *Walker, Hale.*

**725 Basic Theories in the Study of Comparative Government U G 5**  
W, Sp. 3 cl.

Examination of such concepts and theories as structural-functional analysis; general systems theory; and socio-cultural systems as determinants of governmental structures. *Christoph, Richardson, Liddle.*

**731 Problems in Soviet Politics U G 3**

(737) W. 3 cl.

Prereq.: 630 or 655.

An intensive examination of selected problems such as crises of succession, conflicts of pressure groups, Soviet policies in the United States, Sino-Soviet relations. *Nemzer, Stewart.*

**745 Basic Theories in the Study of International Relations U G 5**  
A, Sp. 3 cl.

Examination of such basic concepts and theories as equilibrium models, balance of power, national interest, geopolitical configurations. *Burgess, Rainey, Azline.*

**765 Analytic Political Theory U G 5**  
A. 3 cl.

Analysis of basic concepts (power, elites, political change, etc.); examination of holistic political analyses (Marx, Pareto, Mannheim, MacIver, etc.). *Spitz, Kettler, Champlin.*

**775 Basic Theories in the Study of Politics and Political Behavior U G 5**  
A. 3 cl.

Examination of basic concepts and theories, including political socialization, survey research, simulation and gaming, social conflict and quantitative indicators of political action. *Robinson, Orbell.*



**778 Comparative Political Parties U G 3**  
(734) *Sp. 3 cl.*

*Prereq.: 575 and two courses in foreign governments or equiv.*

An examination of the nature and role of political parties in modern societies by the use of the comparative method. *Christoph.*

**779 The Policy Process U G 5**  
(736) *W. 3-5 cl.*

*Prereq.: Senior standing and 15 cr. hrs. in Pol. Sc.* The roles of elites, ideology, organized interests and issues in the making of government policy. Case studies in the policy process. *Hale, Robinson.*

**783 Honors Course U 3-5**  
(705) *A, W, Sp.*

*Prereq.: 4th yr. standing and 40 cr. hrs. in social sciences, including 15 cr. hrs. in Pol. Sc., with a record of A in at least half of the Pol. Sc. courses and an average of B in the remainder. Permission of the instructor and the Honors Committee of the College. At least two qtrs. are required of candidates for the degree of Bachelor of Arts with Distinction in Pol. Sc. Failure to receive a grade of B in this course is a disqualification for special honors.*

*Repeatable to a maximum of 15 cr. hrs.*

A special topic is assigned to each student and results are tested by the requirement of papers and special examinations.

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785.)

**790 Scope and Methods of Political Science U G 5**

(731) *A, Sp. 1 2-hr. cl., 1 1-hr. cl.*

*Prereq.: 4th yr. standing and 15 cr. hrs. in Pol. Sc.*

The materials of political science; history of procedure in political science research; research technique, presentation of results of research. *Herson.*

**794 Contemporary Political Problems U G 3-5**

(735) *A, W, Sp. 2 3-hr. cl.*

*Prereq.: Senior standing and 15 cr. hrs. in Pol. Sc.*

*A. Quantitative approaches to the study of politics.*

*W. Political theory and social change. Kettler.*

*Sp. European integration. Christoph.*

*Sp. Developing nations.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 900**

A general foundation in undergraduate courses in history and the social sciences is assumed. Any of the 800 courses listed may be repeated provided that no student shall earn more than ten hours of credit in any single course.

**Seminar in National Security Research**

(See Nat. Sec. Pol. S. 801).

**801 American National Government G 3-5 and Institutions**

*A. 2 cl.*

*Prereq.: 700 or permission of instructor.*

Seminar in national political institutions, Congress, Courts, the Presidency, and federalism. *Robinson, Hale.*

**807 Municipal Government G 3-5**

(809) *Sp. 1 2-hr. cl.*

*Prereq.: 610, 611, 505 or equiv.*

Seminar in the municipal governments of the United States and Europe. *Walker, Herson.*

**813 Public Administration G 3-5**

(808) *Sp. 1 2-hr. cl.*

*Prereq.: Any 2 of: 610, 611, 612, 520, (720) or equiv.*

*Walker.*

**818 Public Law G 3-5**

(811) *W. 1 2-hr. cl.*

*Prereq.: 615 and 616.*

Seminar in the field of public law, including special problems in the fields of constitutional law or judicial administration. *Aumann.*

**826 Comparative Government G 3-5**

(806) *A, W, Sp. 1 2-hr. cl.*

*Prereq.: 2 Pol. Sc. courses in foreign governments at 600 level or above or equiv.*

Seminar in the governments of foreign countries. *Christoph, Nemzer, Richardson.*

**846 International Relations G 3-5**

(810) *W, Sp. 1 2-hr. cl.*

*Prereq.: 651 or 656 or 545 or equiv.*

Seminar in international relations.

**866 Political Thought G 3-5**

(806) *A, W, Sp. 1 2-hr. cl.*

*Prereq.: Previous course work in political thought; permission of instructor.*

Seminar in the history of political ideas and in the theoretical problems of contemporary politics for advanced students in related departments. *Spitz, Kettler, Champlin.*

**876 Political Parties and Pressure Groups G 3-5**

(807) *A, W. 1 2-hr. cl.*

*Prereq.: 2 courses in Pol. Sc. at 600 level or above, including 575.*

Seminar in American political parties and pressure groups. *Orbell, Robinson.*

**899 Interdepartmental Seminar G 1-5**

*A, W, Sp.*

(See under Interdepartmental Seminars.)

**999 Research in Political Science G Arr.**

(950) *A, W, Sp.*

Research for thesis or dissertation purposes only.

## Portuguese

Office: 116 Derby Hall, 154 North Oval Drive.

PROFESSORS †BULATKIN (Chairman) and †GRIF-FIN; LECTURER ARAUJO.

### 101 Elementary Portuguese U 5

(401) A. 5 cl.

May not be taken concur. with French 101-102, Ital. 101-102, Span. 101-102.

Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.

Elements of Portuguese grammar, with oral and written exercises; attention to ear training and oral practice; exercises; attention to ear training and oral practice; and customs.

### 102 Elementary Portuguese U 5

(402) W. 5 cl.

Prereq.: 101.

May not be taken concur. with French 101-102, Ital. 101-102, Span. 101-102.

The elements of Portuguese grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building.

### 103 Intermediate Portuguese U 5

(403) Sp. 5 cl.

Prereq.: 102.

Continuation of Portuguese grammar; reading of short stories, plays and novels; increased attention to development of oral proficiency.

### 104 Intermediate Portuguese U 5

(404) A. 5 cl.

Prereq.: 103 or 112.

Reading of Portuguese plays, short stories, and novels; emphasis on oral practice; non-fiction of cultural and historical significance.

### 112 Intensive Portuguese U 5, 10, 15

Su. 15 cl. Enrollment limited to 20 students.

Prereq.: Permission of Chairman.

Full time of student required. Equiv. of 101, 102, and 103. Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.

Elementary and intermediate Portuguese. Intensive drill in forms, syntax, vocabulary, and idiom. Reading of short stories and plays in Portuguese.

### 693 Individual Studies in Portuguese U G 1-5

(701) A, W, Sp.

Prereq.: Permission of instructor.

Griffin.

### 794 Special Group Studies in Portuguese U G 1-5

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Investigation of minor problems in the various fields of Portuguese literature and language.

## Poultry Science

Office: Poultry Administration Building, 674 West Lane Avenue.

PROFESSORS †COOK (Chairman), †BAKER, †BOHL, †BROWN (Associate Chairman), †CRAY (Emeritus), †DAKAN (Emeritus), †HARVEY, †JAAP, †NABER, and †WINTER; ASSOCIATE PROFESSORS †CLAYTON, †MARSH, †MOUNTNEY, and TOUCHBURN; ASSISTANT PROFESSORS CHAMBERLIN and NESTOR.

### Domestic Animals in the Service of Man

(See Animal Sc. 100)

(Offered in cooperation with the Departments of Dairy Sc. and Poultry Sc.)

### 200 Fundamentals of Poultry Science U 5

(401) A, W, Sp. 4 cl., 1 2-hr. lab., 1-day field trip.

Fundamental principles of poultry production and marketing. Marsh.

### 310\* Avian Growth and Meat Production U 3

(501) Sp. 3 cl.

Prereq.: 200 and 10 cr. hrs. Chem., Zool. 101 or 10 cr. hrs. Biol.

Physiology of growth and development in avian species; environmental factors influencing growth. Jaap.

### 311†\* Avian Reproduction and Egg Production U 3

(503) Sp. 3 cl.

Prereq.: 200 and 10 cr. hrs. Chem., Zool. 101 or 10 cr. hrs. Biol.

Physiology of avian reproductive system; management and environmental factors influencing reproduction and production. Jaap.

### Principles of Animal Improvement

(See Dairy Sc. 420.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### Principles of Animal Nutrition

(See Animal Sc. 430.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

### Poultry Marketing

(See Agr. Ec. 521.)

(Offered in cooperation with the Department of Poul. Sc.)

### 589 Poultry Science Experience U 5

(521) A, W, Sp.

Prereq.: Junior standing or higher and permission of instructor.

Practical experience, including completion of outlined program and written report, in an approved poultry establishment.

### 593 Individual Studies U 2, 3 or 5

(701) A, W, Sp.

Prereq.: 15 cr. hrs. 200-level courses or higher in Poul. Sc., Animal Sc., or Dairy Sc. and permission of instructor.



## Physiology of Reproduction and Growth

(See Dairy Sc. 612.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

## Laboratory in Reproductive Physiology and Artificial Insemination

(See Dairy Sc. 613.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

## Nutrition and Feeding of Monogastric Animals

(See Animal Sc. 630.)

(Offered in cooperation with the Department of Poul. Sc.)

## 640+\* Prevention and Control of Avian Diseases U G 5

(613) W. 3 cl., 2 2-hr. lab.

Prereq.: Microbiol. 607, 10 cr. hrs. Chem., 10 cr. hrs. Biol. Sc.

The etiology, recognition, prevention and control of the important diseases of poultry and related birds. Marsh.

## 650 Egg and Poultry Products Technology U G 5

(618) Sp. 4 lec., 1 2-hr. lab.

Prereq.: Microbiol. 607, 15 cr. hrs. Chem.

The quality identification and maintenance; processing; physical, chemical, microbiological and nutrient properties and preservation of egg and poultry products. Mountney.

## 695 Seminar U G 2

(750) A, W, Sp.

### Advanced Reproductive Physiology

(See Dairy Sc. 710.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### Genetics of Animal Populations

(See Dairy Sc. 720.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### Current Topics in Animal Breeding

(See Dairy Sc. 820.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### Advanced Studies in Nutrition

(See Animal Sc. 830.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

### Current Topics in Animal Physiology

(See Dairy Sc. 810.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

## 893 Individual Studies G 2, 3 or 5

(701) A, W, Sp.

Prereq.: 15 cr. hrs. of 300-level courses or higher in Poul. Sc., Animal Sc. or Dairy Sc. and permission of instructor.

## 898 Interdepartmental Seminar in Nutrition and Food Technology G 1

Sp.

(See under Interdepartmental Seminars.)

## 999 Research G Arr.

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Preventive Medicine

Office: B-107 Starling-Loving Hall, 320 W. 10th Avenue. PROFESSORS †ELLINGSON (Chairman), FANCHER, †KELLER, †LEWIS, PALCHANIS (Emeritus), ROBERTS, SHAFFER, and †SHILLITO; ASSOCIATE PROFESSORS †FRAJOLA, †TOMASHEFSKI, and †von GIERKE; ASSISTANT PROFESSORS ARNOLDI, BERRY, †BILLINGS, CATTERSON, DAVIS, DINES, FREEDMAN, †GILMORE, GOODLOE, GRESHAM, GULLETT, HARDING, †HYDE, †KAUFMAN, LANESE, LENTZ, LIEBAN, ODLAND, PETERSON, SCHWICHTENBERG, SCOBIE, SHARP, STUHRING, and YERG; INSTRUCTORS BANKS, CAMPBELL, CHASE, EHRLICH, HAROLD, LOWERY, McCALLY, MEDINA, †MYERS, PRICE, SIDDALL, STEPHAN, †THOMAS, and WAIN.

## 585 Epidemiology U 3

(595) A, W. 2 cl.

Prereq.: Microbiol. 210.

The principles of epidemiology in relation to human health and disease. Keller, Gresham.

## The Comprehensive Evaluation of the Patient.

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthalm., Otol., Phys. Med., Ped., Psychiatry, Radiol., and Surg.]

[Emphasis on preventive relationship in individual and community health including environmental and occupational hazards and community resources for diagnosis, treatment and control of diseases.]

## 618 Introduction to Public Health U 3

W, Sp. 2 cl.

Prereq.: Nurs. 3rd yr. standing.

Consideration of medical statistics and lab. exercises in analysis of papers in the medical literature, with reference to experimental design and numerical reasoning. Keller and Staff.

## 624 Quantitative Methods in Medicine P 2

Sp. 2-hr. cl.

Prereq.: Med. 1st yr. standing

Principles of medical statistics and lab. exercises in analysis of papers in the medical literature, with reference to experimental design and numerical reasoning. Keller and Staff.

**735 Advanced Preventive Medicine P 2**

1 month, offered Oct., Feb.

Prereq.: Med. 4th yr. standing.

Ecology of health and disease in the modern community; environmental health; public health methods; medical nutrition; and biometric application. Legal problems in Preventive Medicine. Keller and Staff.

**753 Principles of Public Health Administration P 6**

1 month, offered all months except June.

Prereq.: Med. 3rd yr. standing.

Administration, organization, and function of Public Health agencies. Principles of sanitation, food inspection, immunization, and school health. Goodloe and Staff.

**793 Individual Studies in Preventive Medicine**

1, 2, 3 or 4 months; offered P 6, 12, 18, 24 all months except June.

Su, A, W, Sp.

G 2-5

Prereq.: Med. 3rd yr. standing or graduate standing in Prev. Med.; permission of department chairman.

- .01 Aerospace Medicine. Ellingson.
- .02 Biometrics. Keller.
- .03 Clinical Environmental Medicine. Shillito.
- .04 Environmental Health. Roberts.
- .05 Epidemiology. Keller.
- .06 Nutrition. Lewis.
- .07 Occupational Medicine. Shillito.

**799 Residency in Preventive Medicine P 18**

Su, A, W, Sp. 12 mos., full time beginning July 1.

Prereq.: Appointment as Resident in University Hospital.

Repeatable to a maximum of 72 cr. hrs.

Assignment to accredited area for training in Aerospace and Occupational Medicine.

**810 Principles of Aerospace Medicine G 2**

Su, A, Sp. 10 2-hr. cl.

Prereq.: Resident standing in Aerospace or Occupational Med., or permission of Department Chairman.

Repeatable to a maximum of 4 cr. hrs.

History and background of Aerospace Medicine; government regulatory agencies (FAA and CAB); civilian and military aerospace medical administration, research and practices; field trips to aerospace facilities. Ellingson and staff.

**811 Principles of Occupational Medicine G 2**

Su, A, Sp. 10 2-hr. cl., field trips arr.

Prereq.: Resident standing in Aerospace or Occupational Med., or permission of Department Chairman.

Intramural and extramural relationships of the physician in industry; physical facilities, personnel and equipment of industrial medical departments; departmental budgeting; employee examinations, health maintenance programs; safety programs. Shillito and staff.

**812 Principles of Public Health G 2**

Su, A, Sp. 1 2-hr. cl.

Prereq.: Resident standing in Aerospace or Occupational Med., or permission of Department Chairman.

History and development of Public Health agencies; legal bases of Public Health law; administrative structure of official and voluntary agencies and their relationships to the complex of health and medical services in the community. Keller.

**820 Introduction of Applied Toxicology G 3**

A, W, Sp. 2 hr. conf. and hospital ward observations.

Prereq.: Resident standing in Aerospace or Occupational Med., or permission of Department Chairman.

Repeatable to a maximum of 9 cr. hrs.

Basic consideration of the impact of environmental toxins upon the organism; chemical structure of harmful substances in relation to toxicity; intermediary metabolism and sub-cellular responses. Ellingson and staff.

**821 Applied Toxicology in Occupational Medicine G 3**

A, W, Sp. 10 3-hr. lecture-seminars.

Prereq.: 820 or equiv. and permission of Department Chairman.

Consideration of the dusts; noxious gases; toxic aliphatic and aromatic hydrocarbons; and related compounds. Shillito and staff.

**822 Applied Toxicology in Aerospace Medicine G 3**

A, W, Sp. 10 3-hr. lecture-seminars.

Prereq.: 820 or equiv. and permission of instructor.

Consideration of toxic agents which may be experienced in flight operation including pesticides, fuels and propellants, economic poisons and the metals. Shillito and staff.

**830 World Nutrition G 3**

W. 4 cl.

Prereq.: Home Ec. 610, Physiol. Chem. 611-612 or equiv. or permission of instructor.

A multidisciplinary approach to the study of nutrition in developing countries; emphasis on food supply, nutritional status, infant and child malnutrition and nutrition survey methods.

**850 Seminar in Preventive Medicine G 1 or 3**

(755) Su, A, W, Sp.

Prereq.: Resident standing in Prev. Med. or permission of Department Chairman.

- .01 Selected topics in Occupational or Aerospace Medicine. Ellingson and staff.
- .02 Selected topics in advanced nutrition. Lewis and Medical Staff.

**851 Epidemiologic Methods G 3**

(750) Su.

Prereq.: Permission of instructor.

Principles of epidemiology with special emphasis on methods employed in current epidemiologic studies of chronic diseases. Keller and Staff.

**856 Nutrition in Systemic Disease G 3**

(760) W.

Prereq.: Med. senior standing or grad. standing in Nutrition or Med. Diet.

The physio-pathological background of systemic disease and the rationale of specific diets in their prevention and treatment. Lewis and Medical Staff.



**858 Community Nutrition G 3**  
(761) W, Sp.

*Prereq.: Med. senior standing or grad. standing in Nutrition.*

Methods of discovering problems in public health nutrition and practical application of nutrition information for improvement of nutritional status at various age levels. *Scobie.*

**860 Advanced Preventive Medicine: G 3**  
**Public Health**

(850) A. 2 2-hr. conf.

*Prereq.: 851 or permission of instructor.*

Principles of public health, vital statistics, epidemiology, environmental sanitation, and communicable disease control on local, national and global bases. *Keller and Staff.*

**861 Advanced Preventive Medicine: G 3**  
**Industrial Hygiene**

(851) W. 3 conf. and lab.

*Prereq.: 860, resident standing in Aerospace or Occupational Med.*

Engineering appraisal of environmental health hazards, sampling techniques, instrumentation and analytical methods; the industrial hygiene survey. *Roberts and staff.*

**862 Advanced Preventive Medicine: G 3**  
**Environmental Control**

(852) Sp. Conf. and field exercises.

*Prereq.: 860 and 861, resident standing in Aerospace or Occupational Med.*

Principles of substitution, enclosure, isolation of hazardous operations; local exhaust ventilations; general ventilation-air conditioning. Noise control, radiant energy; ionizing radiation. Personal protective equipment, medical supervision of persons exposed to conditions of special hazards. *Roberts and Staff.*

**898 Interdepartmental Seminar in G 1**  
**Nutrition and Food Technology**

Sp.

*(See Interdepartmental Seminars.)*

**899 Interdepartmental Seminar in G 1-5**  
**Industrial Engineering**

Su, A, W, Sp.

*Prereq.: Resident standing in Aerospace or Occupational Med.*

The Departments of Industrial Engineering and Preventive Medicine conduct a Seminar annually with industrial psychologists in an area of common interest. Topic to be announced.

**999 Research in Preventive G Arr.**  
**Medicine**

(950) Su, A, W, Sp.

Research for thesis purposes only.

## Psychiatry

*Office: 071 Upham Hall, 473 West 12th Avenue.*

PROFESSORS †GREGORY (Chairman), G. HARDING, SR., †LISS, †MARKS, †PALMER, †PATTERSON, and †RETTIG; ASSOCIATE PROFESSORS †CORSON, †FISCHER, †GOLDMAN, †GREEN, G. HARDING, JR., †KAELBLING, †KANGAS, MICHAEL, †MISSILDINE, †PARKER, †PINE, and †RISTINE; ASSISTANT PROFESSORS BEIER, †BESCH, BRANDES, BRUSH, BURK, BUTCHER, CORLIS, †GARDNER, GOVE, †GWYNNE, H. HARDING, HAAS, †KARRAS, KING, †KNOPP, †LEARMONTH, †LINDNER, LOHRMAN, †McCLUER, MCGOUGH, NEW, ROND, STEPHENSON, TODD, †VECOZOLS, and WHELDON; INSTRUCTOR †VAN SICKLE.

### Comprehensive Evaluation of the Patient

*(See Med. 601, 602, 603)*

*[Offered in cooperation with the departments of Med., Ob. Gyn., Ophthalm., Otol., Phys. Med., Ped., Prev. Med., Radiol., and Surg.]*

*(Experiences with the emotionally disturbed in various clinical areas emphasizing interview techniques; dynamic and descriptive approaches to concepts of emotional growth, development, and pathology.)*

**707 Case Study P G 1**

(807) Su. 1 cl.

*Prereq.: Permission of chairman and instructor.*

Introduction to methods of psychiatric case study (interview, history, examination and diagnosis); and to general principles of clinical psychopathology (descriptive, dynamic, developmental and etiologic.)

**708 Psychopathology I P G 1**

A. 1 cl.

*Prereq.: Permission of chairman.*

A sequence course in Autumn, Winter, and Spring quarters reviewing the clinical, etiological and psychodynamic aspects of the common psychiatric disorders.

**709 Psychopathology II P G 1**

W. 1 cl.

*Prereq.: 708.*

Continuation of 708.

**710 Psychopathology III P G 1**

Sp. 1 cl.

*Prereq.: 708, 709.*

Continuation of 709.

**711 Introduction to Group P G 1**  
**Psychotherapy**

Sp. 1 cl.

*Prereq.: Permission of instructor.*

Rationale for the use of group psychotherapy and fundamental techniques needed in starting and conducting a psychotherapeutic group.

**712 Advanced Psychotherapy and P G 2**  
**Family Therapy I**

A. 1 2-hr. cl.

*Prereq.: 740, 741 or equiv.*

Family therapy, communication systems, family rules and structure; analysis of therapist-patient relationships.

- 713 Advanced Psychotherapy and Family Therapy II** P G 2  
W. 1 2-hr. cl.  
Prereq.: 712 or equiv.  
Continuation of 712.
- 714 Behavioral Science I** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.  
Intensive coverage of scientific research procedures in the behavioral sciences, including the nature of the hypothesis, experimental designs, techniques of controls, and some basic parametric and non-parametric statistics.
- 715 Behavioral Science II** P G 1  
W. 1 cl.  
Prereq.: 714.  
Continuation of 714.
- 716 Behavioral Science III** P G 1  
Sp. 1 cl.  
Prereq.: 715.  
Covers problems and methods of personality measurements with emphasis on objective approaches to personality assessment.
- 717 Neuropathological Basis of Mental Disorders** P G 2  
W. 2 cl.  
Prereq.: Permission of chairman.  
Emphasis on new trends in neuropathology as illustrated by results of recent research; considered as a re-evaluation of established and hypothetical etiological mechanisms of diseases affecting the nervous system.
- 718 Psychiatric Theory I** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.  
Covers psychiatric theories of personality, nature and etiology of psychopathology and psychotherapy plus relevant historical material; emphasizes Freudian psychoanalytic theory and its precursors.
- 719 Psychiatric Theory II** P G 1  
W. 1 cl.  
Prereq.: 718 and permission of chairman.  
Continuation of 718.
- 720 Psychiatric Theory III** P G 1  
Sp. 1 cl.  
Prereq.: 719 and permission of chairman.  
Covers psychiatric theories of personality, nature and etiology of psychopathology and psychotherapy plus relevant historical material; emphasizes other major theorists neither classical, psychoanalytic nor Neo Freudian.
- 721 Neuroendocrine Bases of Behavior** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.  
Normal and pathologic operation of selected biologic control systems examined in terms of cybernetics, relating anatomy, physiology, and pharmacology to overt behavior.
- 722 Forensic Psychiatry** P G 1  
Sp. 1 cl.  
Prereq.: M.D. degree, and permission of chairman.  
Psychiatric testimony in criminal and civil legal procedures; determination of competency and indications for involuntary commitment; legal responsibilities of the psychiatrist.
- 723 Community Psychiatry** P G 1  
Su. 1 cl.  
Prereq.: Permission of chairman.  
A review of the recent growth, development and expanding programs in the field of community psychiatry.
- 737 Clinical Psychiatry** P 12  
2 months, offered July, Sept., Nov., Jan., Mar., and May. Registration for March only, for W. (6 cr. hr.) and Sp. (6 cr. hr.)  
Prereq.: Med. 3rd or 4th yr. standing.  
Psychopathology and dynamics of psychiatric syndromes; diagnosis, treatment, and interview techniques in ward work, case studies, conferences and seminars; correlations of medical, psychological, and social factors.
- 740 Basic Psychotherapy I** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.  
A study of basic concepts of psychotherapy, theory and technique, with review of the development and structure of the personality.
- 741 Basic Psychotherapy II** P G 1  
W. 1 cl.  
Prereq.: 740.  
Continuation of 740. A study of basic concepts of psychotherapy, theory and technique, with review of the development and structure of the personality.
- 742 Child Psychiatry** P G 1  
Su. 1 cl.  
Prereq.: Permission of instructor.  
The application of the theory of disturbed family attitude homeostasis to the behavior problems with children; a discussion of case histories, interview techniques and treatment approaches to the problems of children.
- 745 History of Psychiatry I** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.  
The development of psychiatric concepts and practices through the ages; study of biographical sources and significant writings.
- 746 History of Psychiatry II** P G 1  
W. 1 cl.  
Prereq.: 745 and permission of chairman.  
Continuation of 745.
- 747 Interview Techniques** P G 1  
Su. 1 cl.  
Prereq.: Permission of chairman.  
A review of the principles and techniques of interviewing the psychiatric patient, with demonstrations and practice interviews supplemented by tapes.



**749 Psychiatric Drug and Somatic Therapies P G 1**

*Su. 1 cl.*

*Prereq.: Permission of chairman.*

A systemic discussion of the relevant basic information related to the clinical applications, indication, contra-indications and precautions in the application of the respective therapies.

**751 Anatomical Substrates of Behavior P G 1**

*A. 1 cl.*

*Prereq.: Anat. 642 and 643 or equiv.*

A review of topography and discussions of the nervous system as a substrate of higher nervous functions and seat of mental disturbances.

**793 Individual Studies in Biological Psychiatry**

*1, 2 or 3 months, offered all months P 6, 12, 18 Su, A, W, Sp. G 1-2*

*Prereq.: Med. 3rd or 4th yr. standing and permission of chairman.*

- Biological Psychiatry.
- Experimental Psychology.
- Learning and Motivation.
- Neuroendocrine and Other Correlates of Conditioned Reflexes and Hypnosis.
- Neurochemistry and Neuropharmacology.
- Neuroendocrinology.
- Neuropathology.
- Neurophysiology.

**794 Individual Studies in Clinical Psychiatry**

*1, 2 or 3 months, offered all months P 6, 12, 18 Su, A, W, Sp. G 1-2*

*Prereq.: Med. 3rd or 4th yr. standing and permission of chairman.*

- Advanced Psychotherapy.
- Experimental Psychopathology.
- Mental Health Administration.
- Psychiatric Test Procedures.
- Psychosomatic Medicine.
- Social Psychiatry.
- Social Psychology.
- Clinical Psychiatry.

**795 Group Studies in Psychiatry P 6**

*1 month.*

*Prereq.: Med. 3rd or 4th yr. standing and permission of dept. chairman.*

- Cerebrovisceral Physiology and Pavlovian Conditioned Reflexes. *Nov. Jan., Feb., Mar. Corson.*
- Chemical Pharmacological Models and Mechanisms in Biological Psychiatry. *Feb. R. Fischer.*
- Pathology of Mental and Neurological Disease. *Nov. L. Liss.*
- Psychological Aspects of Psychiatry. *Jan. N. Besch.*
- Biological Communication and Control Systems. *Mar. H. Goldman and L. Lindner.*
- Sociological and Social Psychological Aspects of Psychiatry. *Jan. S. Rettig.*

**799 Residency in Psychiatry P 18**

*Su, A, W, Sp.*

*12 months, full time, beginning July 1.*

*Prereq.: Appointment as Resident, University Hospital.*

*Repeatable to a maximum of 216 hrs.*

Rotation through in-patient and out-patient services in the diagnosis and treatment of psychiatric disorders of adults and children; rounds, conferences and individual supervision.

**850 Seminars in Psychiatry G 1-2**

*(800) Su, A, W, Sp. 1 cl.*

*Prereq.: Permission of chairman and instructor.*

*Repeatable to a maximum of 6 cr. hrs.*

- Clinical Psychiatry.
- Group Therapy.
- Psychotherapy.
- Psychiatric Literature.
- Child Psychiatry.

**999 Psychiatry Research G 5-15**

*(950) Su, A, W, Sp.*

*Prereq.: M.D., and residency in Psychiatry.*

Research for thesis purposes only.

**Psychology**

*Office: 321 Arps Hall, 1945 North High Street.*  
 PROFESSORS †WHERRY (Chairman), †BRIGGS, †BURNETT, †CASSIDY, †COOK, †FLETCHER, †HORROCKS, †HOWELL, †HUELSMAN, †LAWSON, MacMINN, †MARKS, †MEYER, †PEPINSKY, †ROBINSON, †SHARTLE, †SIEGEL, †STEWART, †THOMPSON, and †WICKENS; ASSOCIATE PROFESSORS BRITTIN, †BROCK, †CLARK, †ERICKSON, HUNT, †JOHNSON, †JONES, †KANGAS, †NAYLOR, †SCHMIDT, †SMITH, †WENAR, and †WOLF; ASSISTANT PROFESSORS BEIER, †CAVIN, CAMPBELL, CRAWFORD, †ERNST, GARDNER, †GREENWALD, †JOHNSTON, KETCHUM, LIBBY, MIRELS, NOLAN, †OSTROM, OWEN, PECKHAM, RAISLER, †SCHÖNEMANN, WALSH, and †WEAVER; LECTURERS ALBRECHT, †BESCH, CONAWAY, †GREYER, INSTRUCTORS AMOS, BLUM, HANNA, and STURDIVANT.

**100 General Psychology U 5**

*(401) A, W, Sp. 5 cl.*

Introductory psychology, a prerequisite to advanced courses. The application of the scientific method to behavior. Topics include: Learning, Motivation, Perception, Personality, Physiological basis of behavior.

**101 General Psychology U 5**

*(402) A, W, Sp. 5 cl.*

*Prereq.: 100.*

Continuation of 100. Further emphasis on the development of a scientific attitude toward personal psychological problems in the fields of learning, thinking, intelligence, and personality.

- 110† Mental Hygiene** U 3  
(408) A, W, Sp. 3 cl.  
Prereq.: 100.  
Not open to seniors.

Survey of the principles of mental hygiene. Social and emotional adjustment, and personality in light of the principles of mental hygiene. Adjustment problems of the college student.

- 120 Psychology of Personal Effectiveness** U 3  
(411) A, W, Sp. 2 cl., 1 2-hr. lab.

A survey of theories and practices designed to improve higher level skills in reading, perception, learning, and adjustments.

- 130 Advising Freshman Students** U 1-4  
(581) A, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 4 cr. hrs.

Mature student assistants of freshmen will have actual experience in advising younger students concerning their scholastic and social orientation and personal development.

- 210 Educational Psychology for Medical Personnel** U 5  
(404) Sp. 5 cl.  
Prereq.: 100 and Zool. 404.  
Not open to students with credit for 230.

Human capacities, abilities, interests, individual differences and total development through the life span. Aspects of learning and personality of interest to medical personnel.

- 220 Quantitative Methods in Psychology** U 5  
(508) A, W, Sp. 5 cl.  
Prereq.: 100 or 300 and Math. 116 or equiv.

Methods of measurement in psychology, procedures used in expressing behavior in terms of quantity, the significance of quantity in the study of human traits.

- 230 Introduction to Educational Psychology** U 5  
(407) A, W, Sp. 5 cl.  
Prereq.: 100.  
Not open to students with credit for 210.

Facts and principles of human development and learning are applied to the problems of education. Scientific evidence in the solution of educational problems is stressed.

- 300 Introductory Psychology** U 5  
(403) A, W, Sp. 5 cl.  
Prereq.: 10 hrs. of science.  
Not open to students with credit for 100.

An introduction to psychology for students with science background; topics covered similar to 100.

- 310 General Psychology: Sensation and Perception** U 3  
(504) A, Sp. 3 cl.  
Prereq. or concur.: 220.

Subject matter and methods of psychology as a life science, with special reference to problems of sensory intensity, the sensory discrimination functions, and perceptual functions.

- 311 General Psychology: Motivation and Action** U 3  
(505) A, W. 3 cl.  
Prereq. or concur.: 220.

A behavioristic presentation of experimental work on learning and motivation.

- 312 General Psychology: Learning and Thinking** U 3  
(506) W, Sp. 3 cl.  
Prereq.: 311.

The principles developed in 311 are extended to complex human behavior, especially verbal.

- 320 Social Psychology** U 3  
(521) A, W, Sp. 3 cl.  
Prereq.: 220.

The influence of group processes, organizational variables, and culture upon the social modification of basic drives, attitudes and language.

- 330 Psychology of Abnormal Behavior** U 3  
(541) A, W, Sp. 3 cl.  
Prereq.: 10 cr. hrs. in Psychol.

A consideration of the symptomatology, etiologies and therapies of the major neuroses and psychoses with special emphasis on psychoanalytic theories and methods.

- 340 Genetic Psychology** U 3  
(507) A, Sp. 3 cl.  
Prereq.: 9 cr. hrs. in Psychol.

The facts of human development with some phylogenetic perspective. Topics cover physical and mental development, innate tendencies, mental states and personality development.

- 500 Experimental Psychology** U G 2  
(601) A, W, Sp. 1 cl., 2 lab. hrs. arr.  
Prereq.: 310 and 312 or permission of instructor.

The experiments are selected both for general and cultural values and for preparation for technical research in experimental psychology. Peckham.

- 501 Physiological Psychology** U G 3  
(605) W. 3 cl.  
Prereq.: 101 or 300.

Some physiological correlates of psychological phenomena. The properties of integrated organ systems, with emphasis upon the characteristics of their elements. Psychosomatic abnormalities will be considered.

- 502 Advanced Physiological Psychology** U G 3  
(606) Sp. 3 cl.  
Prereq.: 501.

Further physiological correlates of psychological phenomena. Sensory and motor processes will be special topics.

- 503 Psychology of Vision** U G 3  
(637) W. 3 cl.  
Prereq.: 310 or permission of instructor.

Phenomena, methods, and theory in all areas of current visual research; provides a foundation in sensory psychology as exemplified in vision. Owen.



**504 Psychology of Music U G 3**

(667) W. 3 cl.

*Prereq.: Permission of instructor.*

Psychological factors in musical learning, memorization, rhythm, harmony, form, tone color, interpretation, dictation, and music talent. *Poland.*

**505 Contemporary Viewpoints in Psychology U G 3**

(646) Sp. 3 cl.

*Prereq.: 16 cr. hrs. in Psychol.*

A consideration of the development of modern scientific psychology from its roots in the school of the nineteenth century to its contemporary status.

**510 Elementary Statistical Methods U G 4**

(608) A, W, Sp. 2 cl., 4 lab. hrs.

*Prereq.: Math. 117 or permission of instructor.*

Introduction to statistics and application to psychological and educational research. Rationale, computation, and interpretation. *Schönemann, Fotheringham, Nolan, Erickson.*

**511 Psychological Testing U G 3**

(613) A, Sp. 2 cl., 1 lab. hr.

*Prereq.: 10 cr. hrs. in Psychol.*

An overview of theoretical and practical aspects of the assessment and prediction of human behavior. Topics include achievement, intelligence, personality, attitudes, interests and interpersonal relations.

**512 Test and Measurement in Speech U G 3**

(704) Sp. 3 cl.

*Prereq.: 510.*

Procedures in developing, using, and evaluating tests in speech education, radio and television, theatre, speech and hearing disorders, and general communication. *Fotheringham.*

**520 Experimental Social Psychology U G 4**

(677) A, W, Sp. 2 cl., 4 lab. hrs.

*Prereq.: 320, 510 and permission of instructor.*

*Repeatable to a maximum of 12 cr. hrs.*

Typical experiments in such social psychological areas as attitude change, group processes, and group influences upon the individual. *Ostrom, Greenwald.*

**530 Psychology of Personality U G 3**

(678) A, W, Sp. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A theoretical approach to the problems of personality development measurement and functioning. Emphasis is given to a critical evaluation of the major theories of personality. *Mirels.*

**531 Clinical Psychology U G 3 or 5**

(695) A, W, Sp. 3 cl., 2 optional lab.

*Prereq.: 15 cr. hrs. in Psychol.*

Discussion of the field of clinical psychology; its methods, its problems and its use in guidance, education, hospitals, industry, and other areas. *Mirels.*

**540 Counseling Psychology: An Introduction U G 3**

(659) A, W. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A course designed for students who are interested in counseling and personnel work. Discussion of counseling psychology, counseling, and testing.

**541 Educational and Vocational Appraisal U G 3**

(640) W. 3 cl.

*Prereq.: 101 or 130.*

Theory and techniques of appraisal of individual characteristics as related to the formulation of future educational and vocational plans. *Walsh.*

**542 Vocational Psychology U G 3**

(689) Sp. 3 cl.

*Prereq.: 101 or 130.*

Survey of the psychological aspects of work and their implication for vocational development; the use of labor force and occupational information in vocational choice. *Campbell.*

**550 Psychology of Childhood U G 3**

(663) A. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

Psychological development from birth to age 12. Influence of school, family, and other out-of-school activities. Provision for the child's psychological needs. *Thompson.*

**551 Adolescence U G 3**

(610) A, W, Sp. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A study of the outstanding characteristics of the adolescent, the educational and social problems arising at this period, and means for dealing with the problem. *Horrocks.*

**552 Studying the Individual Child U G 2-3**

(666) Sp. 1 cl., lab. hrs.

*Prereq.: A course in developmental psychol. and permission of instructor.*

*Repeatable in the following quarter to a maximum of 5 cr. hrs.*

The student is assigned a normal child for individual study. Observation of the child's behavior at home, at school, in varied social situations (using tests where appropriate); coordination of information obtained from records and interviews and a weekly report. *Wenar.*

**560 Educational Psychology U G 3**

(676) A. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A course in advanced educational psychology, giving a critical appraisal of the implications for education of modern psychological findings. *Libby.*

**570 Exceptional Children: General Survey U G 3**

(609) A, W. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

Exceptional children and their problems including intellectual deviant, the partially sighted and hard of hearing children with speech problems, other physically handicapped and emotionally disturbed. *Cassidy and Staff.*

**599 Honors Course U G 3**

(700) A, W, Sp. 3 cl.

*Prereq.: Permission of the departmental Undergraduate Program Committee.*

*Repeatable to a maximum of 9 cr. hrs.*

A program of readings, conferences, and reports selected to provide maximum individual development and preparation for graduate study in the field. *Owen, Lawson, Johnson.*

**600 Psychology of Learning U G 4**

(626) A. 4 cl.

Prereq.: 101 or equiv.

The principles that underlie the discovery, fixation, and retention of new modes of human behavior. Emphasis is placed on theoretical formulation of the necessary conditions of learning and forgetting. *Wickens.*

**601 Comparative Psychology U G 3**

(655) A. 1 cl., 2 2-hr. lab.

Prereq.: 20 cr. hrs. in Psychol. or permission of instructor.

Principles of animal behavior, with emphasis upon the contributions of zoology and B. F. Skinner. *Lawson.*

**610 Introduction to Quantitative Learning Models U G 3**

(629) A. 3 cl.

Prereq.: 312 and 510 or equiv.

A critical review of model building in psychology with special emphasis upon mathematical techniques; detailed examination of two or three current mathematical or statistical models. *Erickson.*

**611 Educational Testing U G 3**

(680) W. 3 cl.

Prereq.: 15 cr. hrs. in Psychol.

A service course for those majoring in Elementary and Secondary Education, Guidance, School Psychology, and School Administration. Stress is on use of measurements in school.

**612 Laboratory and Psychological and Educational Measurement U G 3**

(713) A, Sp. 1 cl., 4 lab. hrs.

Prereq.: 511 or 611 or equiv.

Repeatable to a maximum of 6 cr. hrs.

.01† Administration and Scoring Procedure for Group Tests

.02 Construction of Achievement Tests  
Cook.

A.

.03† Construction of Aptitude and Ability Tests

.04† Construction of Personality Tests

**620 Engineering Psychology U G 3**

(683) A. 3 cl.

Prereq.: 310 and 312 or permission of instructor.

Application of methods and techniques from experimental psychology to problems of equipment design for human use; the design, operation and management of man-machine systems. *Johnston.*

**621 Industrial Psychology U G 3**

(637) A. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

Industrial training; effective work methods; equipment design; environmental factors; fatigue, monotony and accidents; morale. *Ketchum.*

**622 Psychology of Industrial Personnel U G 3**

(639) Sp. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

The application of psychology to problems of personnel. Selection and placement of employees by tests of intelligence and special ability. Trade tests, job analysis, and rating scales. *Ketchum.*

**623 Motivation in Industry U G 3**

(644) W. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

A survey of present theory and research concerning motivation, morale and job satisfaction in industry, and their relation to human performance. *Ketchum.*

**624 Psychology of Advertising U G 3**

(635) A. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

The psychological principles involved in effective advertising, notably attention, memory and action, with the contributory factors of association, feeling, instinct, suggestion, and reasoning. *Ketchum.*

**630 Psychology of Public Attitudes U G 3**

(679) A, W. 3 cl.

Prereq.: 320 and 220 or equiv.

Attitude organization and change. Study of the determinants of attitude. *Ostrom.*

**631 Differential Psychology U G 3**

W. 3 cl.

Prereq.: 220 or 510.

Critical consideration of the traits wherein individuals and groups differ. Factual data as to differences between men and women, races and ethnic groups, social classes, etc. *Libby.*

**632 Prejudice and Personality U G 3**

(648) Sp. 3 cl.

Prereq.: 220.

Social psychological theories of group conflict. Personality dynamics in prejudice. Approaches to the reduction of intergroup hostility.

**633 The Psychology of the Audience U G 2**

Sp. 2 cl.

Prereq.: 630 and 10 cr. hrs. in Speech or permission of instructor.

Descriptive and experimental studies of audience behavior. Dimensions and patterns of audience stimulation. Measurement of effects of communication. Communication analysis. Listening. *Knower.*

**640 Mental Hygiene for Professional Workers U G 3**

(690) A, Sp. 3 cl.

Prereq.: 101 or 230.

The determinants of maladjustment and principles used in the prevention of maladjustment for teachers, personnel workers, social workers, psychologists, occupational therapists, and other professional groups. *MacMinn, Pepinsky.*

**650 Psychological Study of Individuals and Groups U G 3**

(674) A, W. 3 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

Basic concepts and techniques of personnel work in the student living center. *Stewart, Walsh.*



- 651 Psychology of Reading U G 3**  
(683) A, Sp. 3 cl.  
Prereq.: 10 cr. hrs. in Psychol.

Psychological analysis of the reading process. The relationship of this to teaching and remedial methods. Discussion of remedial reading techniques. *Huelsman, Robinson.*

- 660 Psychology of Infancy U G 3**  
W. 3 cl.  
Prereq.: Permission of instructor.

Psychological development during the first four years of life with particular reference to neonatal period and research methodology in studies involving infants. *Wenar.*

- 661 Psychology of Aging U G 3**  
(670) Sp. 3 cl.  
Prereq.: 10 cr. hrs. in Psychol.

A survey of research and theory related to psychological changes through adulthood and old age. *Clark.*

- 670 The Psychology of Speech U G 3**  
(632) W. 3 cl.  
Prereq.: 10 cr. hrs. in Psychol. and 10 cr. hrs. in Speech.

Descriptive and experimental studies of speech processes and activities. Learning, personal and social adjustments, vocal and visible symbolism, language and semantics, thinking. Speech behavior patterns. *Knower.*

- 671 Principles and Economy of Learning U G 3**  
(628) A. 3 cl.  
Prereq.: Grad. standing or 10 cr. hrs. in Psychol.

The psychological principles involved in the practical control of learning activities, especially the more complex forms as seen in school and in industrial training. *Libby.*

- 680 The Intellectual Deviate U G 3**  
(611) W. 3 cl.  
Prereq.: 570 or permission of instructor.

Theory and concepts of mental retardation, slow learner, intellectually gifted; causation, diagnosis, and treatment of social, personal, and educational problems of children so labeled. *Jones.*

- 681 Educational Disability U G 3**  
(636) A. 3 cl.  
Prereq.: 570 and 651 and permission of instructor.

An overview of theory and practice including causes, diagnostic procedures, remediation, and instructional materials. *Huelsman.*

- 682 Principles of Treating the Problem Child U G 3**  
(671) W. 3 cl.  
Prereq.: 15 cr. hrs. in Psychol.

Methods used in dealing with behavior and personality problems of children.

- 683 Psycho-Educational Diagnostic Teaching U G 3**  
(615E) A, W, Sp. 1 cl., 4 lab. hrs.  
Prereq.: 651 and permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.

Using test materials in the diagnosis of special disabilities in school work; practice with remedial procedures. *Huelsman.*

- 684 Delinquent Children U G 3**  
(622†) Sp. 3 cl.  
Prereq.: 15 cr. hrs in Psychol.

The meaning and significance of delinquency in a cultural context; its psychological basis from a theoretical and empirical framework; present modes of detection and treatment. *Libby.*

- 693 Individual Studies U G 1-15**  
(650) A, W, Sp.  
Prereq.: 16 cr. hrs. in Psychol. and permission of instructor.

Individual reading or research projects by special agreement between instructor and student.

### Introduction to National Security

(See Nat. Sec. Pol. S. 702)

### Research Principles and Techniques in National Security

(See Nat. Sec. Pol. S. 785)

- 788 Laboratory in Industrial Psychology U G 3**  
1 cl., 4 lab. hrs.

Prereq.: 510 or equiv. and permission of instructor

Repeatable in different sections to a maximum of 12 cr. hrs.

.01 Attitude and Morale Scales.

Sp.

Ostrom.

.02 Industrial Testing.

W.

Ketchum.

.03† Job and System Analysis and Evaluation

Shartle.

.04† Merit Rating

Wherry.

- 794 Special Topics in Psychology U G 3**  
(703) A, W, Sp. 3 cl.

Prereq.: 15 cr. hrs. in Psychol. at 500 level or above and permission of instructor.

The topics will vary from quarter to quarter and will be announced at least one month in advance.

- 800 Advanced Experimental Laboratory G 3-15**

(831) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Advanced training in the experimental and quantitative methods in the several areas of general experimental psychology and comparative psychology. *Exper. Staff.*

### Seminar in National Security Research

(See Nat. Sec. Pol. S. 801)

- 801 Advanced Theoretical Psychology G 4**  
(811) Sp. 4 cl.

A description and evaluation of the major advanced psychological behavior theories. *Wickens.*

**802 Advanced Psychology of Motivation G 3**(841) *Sp. 3 cl.**Prereq.: 20 cr. hrs. in Psychol. incl. 311 or 600 or permission of instructor.*

An evaluation of the experimental and theoretical material on: physiological drives; development and maintenance of secondary motives; perception and motivation, conflict. *Lawson.*

**803 Perception G 3**(845) *Sp. 3 cl.**Prereq.: 310 and 501 or permission of instructor.*

Basic problems and phenomena of perception and their theoretical interpretations. *Owen.*

**804 Advanced Comparative Psychology G 3**(844) *W. 3 cl.**Prereq.: 601.*

Contemporary literature in comparative psychology. *Meyer.*

**805 Psychophysiology of the Special Senses G 3**(843) *A. 3 cl.**Prereq.: 502 or 503 or permission of instructor.*

A survey of the basic physiology of the senses and the peripheral nervous system. Emphasis is upon receptor mechanisms and neural coding processes. *Howell.*

**806 Neuropsychology I G 3***A. 3 cl.*

An introduction to the principles governing neural integrative mechanisms; morphology of nervous systems of the vertebrates; transmission in individual neurons; properties of junctions in integrative networks; elementary laws or reflex action. *Meyer.*

**807 Neuropsychology II G 3***W. 3 cl.**Prereq.: 806.*

Functional differentiation of the nervous systems of vertebrates; properties of principle division of the brain; organizations of the forebrain; mechanisms of sleep and waking rhythm; mechanisms of perception. *Meyer.*

**808 Neuropsychology III G 3***Sp. 3 cl.**Prereq.: 807.*

Neural mechanisms of motivation and behavioral plasticity; control of major cyclical phenomena, including hunger, thirst and reproduction; reactions to aperiodic and continued stresses; mechanisms of the learning process. *Meyer.*

**809 History and Systems of Psychology G 3**(853) *A. 3 cl.**Prereq.: 16 cr. hrs. in Psychol.*

Development of psychology from the philosophical antecedents to its present status as a science and a profession. Assignments in original sources as far as possible. *Meyer.*

**810 Methodological Foundations of Experimental Psychology G 5**(825) *W. 5 cl.*

Problems of definition of psychological concepts, formulation and testing of hypotheses, theory, construction and formulation of empirical generalization with reference to design of psychological experiments. *Wickens.*

**811 Seminar in Experimental Psychology G 2**(802) *A, W, Sp. 2 cl.**Prereq.: Permission of instructor.**Exper. Staff.***812 Contemporary Psychological Literature G 1**(805) *A, W, 1 cl.**Lawson, Briggs.***816 Advanced Engineering Psychology G 3***W. 3 cl.**Prereq.: 620 or permission of instructor.*

Problems of sensory communication, vigilance, training, environmental settings for man-machine systems in an automated society. *Briggs.*

**817 Seminar in Engineering Psychology G 3***A, W, Sp. 3 cl.**Prereq.: Permission of instructor.**Howell, Briggs, Johnston.***819 Seminars in Industrial Psychology G 2**(807) *2 cl.**Prereq.: Permission of instructor.*

a.† Consumer Behavior and Marketing Research

b. Criterion Development

*Sp.**Briggs.*

c. Leadership and Organizational Values

*A.**Shartle.*

d. Motivation and Morale

*W.**Naylor.*

e.† Selection and Placement Theory

*W.*

f. Training Methods and Devices

*W.**Johnston.*

g. Current Practices and Trends

*Sp.**Shartle.***822 Psychological Assessment G 3***W. 3 cl.**Prereq.: 510.*

A critical survey and evaluation of concepts and techniques of assessment of intelligence, special aptitudes, and personality.

**823 Theory of Test Construction G 3**(855) *Sp. 3 cl.**Prereq.: 511 or 611 or equiv.*

Review of major approaches including traditional mental test theory, assessment theory, and decision theory in relation to constructing and use of various types of tests.



**824 Seminar in Psychological Measurement G 2**

(804) 2 cl.

*Prereq.: Permission of instructor.*.01 The Measurement of Cognitive Functions.  
A..02 Models for Psychophysics.  
Sp.*Erickson.*

.03† Models for Psychological Scaling.

.04† Models for Psychological Testing.

.05 Models for Interpersonal Analysis.  
Sp.*Ostrom.***827 Inferential Statistics in Psychology G 4**

A. 4 cl.

*Prereq.: 510 or equiv.*

A coverage of statistical inference and prediction in psychological research including parametric and non-parametric methods and concepts of measurement and probability. *Briggs.*

**828 Correlational Analysis G 4**

(816) Sp. 4 cl.

*Prereq.: 810 or permission of instructor.*

Techniques and rationale of using quantitative and qualitative data for prediction. Test and battery analysis and validation. *Wherry.*

**829 Quantitative Foundations of Psychological Statistics G 4**

(814) W. 4 cl.

*Prereq.: 510 or equiv.*

Principles and techniques for deriving statistical equations; their modification to handle special cases. Clarify-ing assumptions and their application. *Erickson.*

**830 Machine Programming for Psychological Research G 3**

(819) W. 3 cl.

*Prereq.: 828 and Math. 241 and permission of instructor.*

An introduction to mnemonic symbolic language and loop theory. Applications to the more common psychological statistical problems will be stressed. *Wherry.*

**831 Seminars in Psychological Statistics G 2**

(815) 2 cl.

*Prereq.: Permission of instructor.*a. Analysis of Variance  
W.*Lawson.*b. Experimental Design  
Sp.*Naylor.*c. Factor Analysis  
Sp.*Schonemann.*d. Mathematical Models and Theory  
W.*Erickson.*

e. Non-Parametric Statistics

A.

*Wherry.*f. Advanced Experimental Design  
A.*Naylor.*

g.† Advanced Multivariate Analysis

h.† Computer Simulation Research

i.† Current Practices and Trends

**835† Child Development G 3**

A. 3 cl.

Major developmental aspects of childhood; review of theory, methodology, research studies, and historical and contemporary writing about children; consideration inter-disciplinary approaches.

**836† Adolescent Development G 3**

Sp. 3 cl.

Major developmental aspects of adolescence; review of theory, methodology, research studies, and historical and contemporary writing about adolescents; consideration of interdisciplinary approaches.

**837 Theory of Human Development G 3**

(840) A. 3 cl.

Critical consideration of human development; the nature and meaning of development, selected theories and methods of investigation including a consideration of units of measurement. *Horrocks.*

**838 Interaction of Developmental Learning Function G 2**

(854) W. 2 cl.

*Prereq.: 550 or 835 and 600 or 671 or equiv.*

Relation of empirical data on imprinting, sensory and motor deprivation, and environmental extensions upon theoretical construction designed to integrate such data. *Thompson.*

**839† Comparative Child Rearing Practices G 3**

3 cl.

*Prereq.: 835, 836 or equiv. and Sociol. 509 and permission of instructor.*

Comparative survey of familial and community child-rearing practices in modern and primitive cultures; psychological and theoretical implications of various practices; review of research methodology.

**840 Practicum in Developmental Psychology G 3-9**

(838) A, W. 1 cl., lab. hrs.

*Prereq.: 2nd yr. grad. standing in Psychol., 837, 838 and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Observation of children in a representative variety of clinical settings with particular reference to developmental phenomena of growth and behavior. Application of research, diagnostic and intervention methodology, *Wenar.*

**841 Symposium in Developmental Literature G 1**

Sp. 1 cl.

*Prereq.: Permission of instructor.*

Critical review of current research literature in developmental psychology. *Horrocks.*

842 Seminar in Developmental Psychology G 3

(851) 2 cl.  
Prereq.: Permission of the instructor.  
a.† Current Theoretical Issues.  
b. Development of Dimensions of Cognitive Functions.  
Sp.  
Thompson.  
c.† Development of Social Attitudes and Values.  
d. Cultural Influences on Human Development.  
W.  
Horrocka.  
e.† Psychological Variables in Growth.  
f.† Development of Creative Behavior.  
g. Deviate Behavior in Childhood and Adolescence.  
A.  
Wenar.  
h.† Phylogenesis.  
i.† Aging and Senescence.  
j.† Sequestial Phenomena of Growth and Degeneration.  
k.† Developmental Aspects of Language.

846 Advanced Educational Psychology G 3  
W. 3 cl.

Prereq.: Permission of instructor.  
Critical consideration of research and theory in developmental, learning and measurement as relevant to education; special attention to historical positions, assumptions, and current literature. Clark.

847 Psychological Problems in Higher Education G 2

(810) A. 2 cl.  
Designed to give graduate students preparing for college teaching positions contact with current educational research regarding the psychological problems they will encounter. Gustad.

848 Seminar in the College Teaching of Educational Psychology G 2

A, W, Sp. 2 cl.  
Prereq.: Permission of instructor.  
The objectives of educational psychology in teacher education; a presentation of practical problems in organization, development, and evaluation of undergraduate courses in educational psychology. Clark.

849 Seminar in Educational Psychology G 2

(803) W, Sp. 2 cl.  
Prereq.: Permission of instructor.  
Clark, Libby.

853 Psychology of the Exceptional Child and Adult G 3

Sp. 3 cl.  
Review and evaluation of theoretical and research literature concerning exceptional children and adults. Cassidy.

854 Psychological and Child Study Services in the Public Schools G 3

(824) Sp. 3 cl.  
Prereq.: Permission of instructor.  
Professional problems in school psychology. Smith.

855 Psycho-Educational Diagnosis G 3

1 cl., 4 lab. hrs.  
Prereq.: Permission of instructor. Sections .01 and .02 are prereq. for Sections .03, .04, and .05.  
Theory, development, and use of tests, scales, and other diagnostic procedures; practice in interviewing and writing and use of psychological reports.  
.01 Binet Type Tests  
A.  
Smith.  
.02 Wechsler Intelligence Scales  
A.  
Smith.  
.03 Special Tests of Sensory, Motor and Language Handicaps  
W.  
Smith.  
.04 Developmental Diagnosis  
W.  
Smith.  
.05 Advanced Practicum in Psychological Testing  
A, Sp.  
Smith.

856 Seminar in School Psychology G 1-3

A, W, Sp. 1 to 3 cl.  
Prereq.: Permission of instructor.  
Two sections, A and B, may be taken in any one quarter. Smith, Huelsman.

860 Theories of Personality G 3

(818) W. 3 cl.  
Prereq.: Advanced work in personality and social Psychol. and permission of instructor.  
A critical consideration of the theories of personality structure and origin.

861 Clinical Psychology G

Prereq.: Permission of instructor.  
Introduction to the theory and use of clinical methods in psychology including interviewing, observation of free behavior, case documentation, professional problems, and individual testing. Designed for first-year graduate students.

- .01 Lecture ..... 3  
A. 3 cl.
- .02 Practicum ..... 2  
A. 4 lab. hrs.

862 Psychopathology G

Prereq.: Permission of instructor.  
Personality disturbances and their clinical manifestations.  
.01 Lecture ..... 3  
W. 3 cl.- .02 Practicum ..... 2  
W. 4 lab. hrs.

863 Psychodynamics G

Prereq.: Permission of instructor.  
Survey of personality theories, particularly those related to methods of psychological treatment. Laboratory involves cases in childrens' clinics, mental hospital or school system. Weaver.  
.01 Lecture ..... 3  
Sp. 3 cl.- .02 Practicum ..... 2  
Sp. 4 lab. hrs.



**864 Psychodiagnostics G**

*Prereq.: Permission of instructor.*

Theory and use of psychodiagnostic tests. Laboratory includes administration, scoring, and interpretation of projective tests. *Siegel.*

- .01 Lecture ..... 3  
Sp. 3 cl.
- .02 Practicum ..... 2  
Sp. 4 lab. hrs.

**865† The Psychology of Group Therapy G 2**

(718) 2 cl.

*Prereq.: 882 or permission of instructor.*

Primarily for students who may use psychological group methods in professional work. General principles of group therapy and specific methods with children and adults described and evaluated.

**866 Advanced Psychological Clinic G**

(865) *Prereq.: Permission of instructor.*

Theory and practice of psychotherapy. Offered in connection with community services of Psychology Clinic. Two practicums: Type A, advisory services, and Type B, treatment services.

- .01 Lecture ..... 2  
A, W, 2 cl.
- .02 Practicum ..... 3  
A, W, Sp. 6 lab. hrs.  
Repeatable to a maximum of 9 cr. hrs., with no more than 6 hrs. of one type.

**867 Seminar in Clinical and Abnormal Psychology G 2 or 4**

(806) A, W, Sp. 2 cl.

*Prereq.: Permission of instructor.*

Two sections may be offered in any one qtr.

*Weaver.*

**870 Advanced Social Psychology G 3**

(812) A. 3 cl.

*Prereq.: 25 cr. hrs. in Psychol. incl. 320 and 802 or 600 or equiv.*

Problems of learning and perception relative to the social environment, the influence of culture in the development of individual behavior patterns, and related topics. *Brock.*

**871 Counseling and Therapy as Social Institutions G 3**

(834) A. 3 cl.

A review of diverse counseling and therapeutic practice as belief and ritual, with emphasis upon their manifest and latent functions in American Society. *Pepinsky.*

**872 Social Psychology Laboratory G 3-12**

A, W, Sp. 2 cl., 2 lab. hrs. for each additional cr. hr.

*Prereq.: Permission of instructor.*

Repeatable to a maximum of 12 cr. hrs.

Advanced training in methods and data collection in the areas of social psychology, laboratory, and field experience. *Brock.*

**873 Seminar in Social Psychology G 3**

(813) 3 cl.

*Prereq.: Permission of instructor.*

- a. Contemporary Attitude Theory and Research.  
A.

*Ostrom.*

- b. Social Structure and Personality  
W.

*Brock.*

- c. Systematic Theory in Social Psychology  
Sp.

*Brock.*

- d. The Psychology of Social Movements  
W.

- e. Current Research Trends  
A.

- f.† Group Processes

**880 Laboratory in the Psychology of Campus Groups G 3**

(782) W, Sp. 1 cl., 6 lab. hrs.

*Prereq.: 650 and 882.*

Experience in the advisement of campus organizations and in services to special student groups is paralleled with continuous discussion of psychological principles and appropriate technique. *Stewart.*

**881 Administrative Aspects of Student Personnel Work G 2**

(827) A, Sp. 2 cl.

*Prereq.: Permission of instructor.*

Advanced graduate students have the opportunity of relating principles and concepts of student personnel administration to operating procedures on the campus. *Stewart, MacMinn.*

**882 Psychology of Counseling G 3**

(821) A, W. 3 cl.

*Prereq.: 15 cr. hrs. in Psychol.*

Assumptions and facts fundamental to counseling; factors in the interview situation; nature of counseling techniques; resources in counseling; relation of counseling to other personnel procedures. *Robinson.*

**883 Counseling Diagnostics G**

(852) *Prereq.: 510, 511, 882 and (for laboratory) permission of instructor.*

Theory and application of interview data, observed behavior, test results, and biographical information as a basis for diagnostics in counseling and evaluation. *Fletcher.*

- .01 Lecture ..... 3  
A, W. 3 cl.
- .02 Practicum ..... 2  
A, W. 4 lab. hrs.

**884 Psychology of Career Development G 3**

(823) Sp. 3 cl.

*Prereq.: 882.*

A survey and critical analysis of literature and research regarding effects of sequence of work activity, vocational exploration, and career development. *Fletcher.*

**885 Beginning Practicum in Counseling G 3**

(832) A, W, Sp. 1 cl., 4 lab. hrs.

*Prereq.: 883 and permission of instructor.*

Repeatable to a maximum of 6 cr. hrs.

Supervised practice in assisting college students in their adjustment to college. Emphasis on diagnosis and treatment. Special help is given to interviewing procedures. *Stewart, Walsh.*

**886 Advanced Practicum in Counseling G 2-3**(833) *A. W. Sp. 1 cl., 2 lab. hrs. for each hr. of additional credit.**Prereq.: 885 and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Supervised practice in (a) assisting college students and adults with problems of personality adjustments or (b) supervising techniques through observation and discussion of work with other counselors. *Fletcher.*

**887 Seminar in Counseling Psychology G 2**(822) *A. W. Sp. 2 cl.**Prereq.: Permission of instructor.**Fletcher, Campbell, Walsh.***899 Interdepartmental Seminar G 1-5***A. W. Sp.**(See under Interdepartmental Seminars.)***980 Supervised Field Experience in Psychology G 1-15**(880) *A. W. Sp.*

*Prereq.: Psychol. 2nd yr. standing and approval of local staff of area in which student is specializing. Supervised by member of local staff and some member of the outside agency approved by the Department of Psychology.*

Supervised experience, either research or operational, in any agency doing professional psychological work such as a school system, a psychological clinic, an industrial personnel department, or a counseling center.

**999 Research in Psychology G Arr.**(950) *A. W. Sp.**Research for thesis or dissertation purposes only.***750 Radiology, Advanced P 1***1 month, offered Oct., Feb.**Prereq.: Med. 4th yr. standing.*

Clinical clerkship in the Department of Radiology, University Hospital; instruction in radiation therapy and film reading techniques.

**793 Individual Studies P 6, 12, 18 or 24***1, 2, 3, or 4 months, offered all months except June, July, Aug.**Prereq.: Med. 3rd or 4th yr. standing.*

Graduated participation in diagnostic and therapeutic radiology. Optional research project after 6 cr. hrs. in 798.

**799 Residency in Radiology P 18***Su, A. W. Sp.**12 months full time, beginning any month.**Prereq.: Appointment as Resident, University Hospital.**Repeatable to a maximum of 216 cr. hrs.*

General diagnostic radiology, nuclear medicine, and radiation therapy, special diagnostic and therapeutic procedures, consultations, and conferences.

**999 Research in Radiology G Arr.**(950) *Su, A. W. Sp.**Research for thesis purpose only.*

## Radiology

*Office: University Hospital, 410 West 10th Avenue.*

PROFESSORS †NELSON (*Chairman*), †CHRISTOFORIDIS, †FREIMANIS, MOLNAR, †MYERS, and †POMEROY; ASSISTANT PROFESSORS DUNBAR, FLEVARES, HARRIS, MOUNTS, RICCOBONO, RIEBEL, SCHLOSS, SOPP, and STOCKUM.

### The Comprehensive Evaluation of the Patient

*(See Med. 601, 602, 603.)*

*[Offered in cooperation with Departments of Med., Ob. and Gyn., Ophthal., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, and Surg.]*

*[Discussion of radiological methods contributing to the diagnosis and therapy of various abnormal physiological and pathological entities presented.]*

**740 Radiological Diagnosis P 6, 12, 18, 24 in Clinical Medicine***1, 2, 3, or 4 months, offered all months except June, July, Aug.**Prereq.: Med. 3rd and 4th yr. standing.*

Participation in diagnostic radiology; special seminars and clinics; optional research project. *Nelson.*

## Romance Linguistics

*Office: 116 Derby Hall, 154 North Oval Drive.*

PROFESSORS †BULATKIN (*Chairman*), and †GRIFFIN.

**693 Individual Studies in Romance Linguistics U G 1-5**(701) *A. W. Sp.**Prereq.: Permission of instructor.**Griffin.***794 Special Group Studies in Romance Linguistics U G 1-5***A. W. Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Investigation of minor problems in the various fields of Romance Linguistics.

**811 Romance Linguistics I G 5**(847) *W. 5 cl.**Prereq.: Permission of instructor.**Not open to students with credit for (647).*

A general survey of the development of the Romance languages and an introduction to the basic materials and techniques of investigation. *Griffin.*



**812 Romance Linguistics II G 5**  
(848) Sp. 5 cl.

Prereq.: 847 or permission of instructor.

Not open to students with credit for (648).

Topics and problems, both synchronic and diachronic. Special attention to the minor Romance languages. Griffin.

**831† Seminar in Romance Linguistics G 3-5**  
(822) Sp.

Prereq.: Permission of instructor.

Griffin.

## Rural Sociology

Office: Department of Agricultural Economics and Rural Sociology, 103 Agricultural Administration Building, 2120 Fyffe Road.

PROFESSORS †McCORMICK (Acting Chairman), †BAILEY, †R. L. BAKER, †R. H. BAKER, †BAUMER, BLOSSER, †CRAVENS, CRAY (Emeritus), DOUGAN, HENNING (Emeritus), †MANGUS, MILNER, †MITCHELL, †OYLER, †SHARP, †SHAUDYS, †SHERMAN, †SITTERLEY, †SMITH, †STOUT, †TOMPKIN, †WAYT, †WILLIAMS, and WERTZ (Emeritus); ASSOCIATE PROFESSORS †ADAMS, †BARR, †BOTTUM, CLAYTON, EZZELL, †JACOBSON, †JONES, McDONALD, MOORE, †REESER, †STEELE, and, †WALKER; ASSISTANT PROFESSORS †DARROW, †HIMES, †INGRAHAM, †MARION, †PHILLIPS, POLLOCK, †RASK, and VANDEMARK; INSTRUCTORS BURKHART, THOMAS, and TUCKER.

**105 Introduction to Rural Sociology U 5**  
(405) A, W, Sp. 5 cl.

Not open to students with credit for Soc. 101 or 201.

Principles of society, major social institutions and social change; emphasizes social changes in rural life, rural organizations, population and family living. Mangus, Mitchell, Phillips.

**310 The Rural Family U 5**  
(630) A. 5 cl.

Prereq.: 105 or Soc. 101 or 201.

Structure and functions of rural families in changing societies. Mangus.

**316 Rural Social Organization U 5**  
(609) A. 4 cl., 1 2-hr. lab.

Prereq.: 105 or Soc. 101 or 201.

Covers elements of social organization, functions of formal and informal social systems, process of making decisions in communities; analysis of actual rural community is made. Mitchell.

**317 Rural Leadership U 3**  
(506) Sp. 1 2-hr. cl., 1 2-hr. lab.

Prereq.: 105 or Soc. 101 or 201.

Basic principles and practices in the development of effective leadership in organization programs. Mitchell.

**421 Diffusion of Information on Agricultural Technology U 3**

(640) Sp. 3 cl.

Prereq.: 105 or Soc. 101 or 201.

The process by which new ideas diffuse to the farmer and homemaker. Emphasis on the role of group influences, professional agricultural workers, and adoption leaders. Mitchell.

**422 Rural Sociology of Developing Societies U 3**

(880) W. 3 cl.

Prereq.: 105 or Soc. 101 or 201.

Sociological principles applied to analysis of present social systems and institutions of developing nations for students preparing for foreign service with rural societies. Mangus.

**593 Individual Studies U G 2-5**  
(701) A, W, Sp.

Prereq.: As req. for 500-level courses with permission of instructor.

**600 Advanced Rural Sociology U G 5**  
(806) W. 5 cl.

Prereq.: 15 cr. hrs. in Rur. Soc. and/or Soc. at the 300 level or higher.

An advanced course on rural society dealing with fundamentals in rural social institutions and organizations, rural social change and nature of rural social systems. Mangus.

**693 Individual Studies U G 2-5**  
(701) A, W, Sp.

Prereq.: As req. for 600-level courses with permission of instructor.

**996 Seminars in Rural Sociology G 2-4**  
(901) A, W, Sp. Cl. arr.

Prereq.: 30 cr. hrs. in Rur. Soc. and/or Soc.

Each seminar topic repeatable to a maximum of 8 cr. hrs.

Topics will be announced by the department prior to registration time each qtr.

The fields of study are as follows:

- .01 Population Problems
- .02 Rural Family
- .03 Rural Health
- .04 Rural Leadership
- .05 Rural Community and Institutions
- .06 Community Development
- .07 Diffusion of Technology
- .08 Research Methods in Rural Sociology
- .09 Social Organization and Administrative Problems
- .10 Sociology of Foreign Areas
- .11 Rural Church
- .12 Farmer Organizations

**999 Research in Rural Sociology G Arr.**  
(950) A, W, Sp.

Research for thesis and dissertation purposes only.

## Russian

Office: 316 University Hall, 216 North Oval Drive.

PROFESSORS †TWAROG (Chairman), and VAKAR (Visiting); ASSOCIATE PROFESSORS †OULANOFF, and †SILBAJORIS; ASSISTANT PROFESSORS KRESKY, †NAYLOR, and †ROBINSON.

### 101 Elementary Russian U 5

(401) A, W, Sp. 5 cl.

Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.

### 102 Elementary Russian U 5

(402) A, W, Sp. 5 cl.

Prereq.: 101.

### 103 Intermediate Russian U 5

(403) A, W, Sp. 5 cl.

Prereq.: 102.

Reading of prose and poetry; oral and written practice; grammar review.

### 104 Intermediate Russian U 5

(404) A, W, Sp. 5 cl.

Prereq.: 103 or 112.

107, 108 and 109 may be taken in lieu of 104.

Reading of prose and poetry; oral and written practice; vocabulary building.

### 107 Scientific Russian Reading U 2

(407) A. 2 cl.

Prereq.: 103 or 112.

107, 108 and 109 may be taken in lieu of 104.

Concentration on material of general interest to all sciences.

### 108 Scientific Russian Reading U 2

(408) W. 2 cl.

Prereq.: 107 or permission of instructor.

107, 108 and 109 may be taken in lieu of 104.

Reading of unedited texts from current Soviet publications.

### 109 Scientific Russian Reading U 2

(409) Sp. 2 cl.

Prereq.: 108 or permission of instructor.

107, 108 and 109 may be taken in lieu of 104.

Specialized reading and translation of a major contribution in one of the sciences.

### 112 Intensive Russian U 5, 10, 15

(415) A. 15 cl. Full time req'd.

Prereq.: Permission of chairman.

Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit. Registration limited. Early enrollment advised.

Elementary and intermediate Russian for students desiring comprehensive knowledge of Russian in the shortest possible time. *Kresky.*

### 130 Elementary-Intermediate Russian For Selected Students U 5

(430) W. 5 cl.

Prereq.: Grade of A in 101.

*Kresky.*

### 131 Elementary-Intermediate Russian For Selected Students U 5

(431) Sp. 5 cl.

Prereq.: 130.

Successful completion of the sequence 101-130-131 fulfills language requirements and provides eligibility for 400 courses.

*Kresky.*

### 405 Russian Conversation U 3

(505) W, Sp. 3 cl.

Prereq.: 104 or permission of instructor.

Drill in everyday patterns of conversation.

### 406 Russian Composition U 2

(506) W, Sp. 2 cl.

Prereq.: 104 or permission of instructor.

Practice in simple writing.

### 407 Intermediate Conversation U 3

(507) Sp. 3 cl.

Prereq.: 405 or permission of instructor.

Drills in intonation. Perfection of pronunciation. Oral reports. Expansion of spoken vocabulary.

### 408 Review Grammar and Composition U 2

(508) Sp. 2 cl.

Prereq.: 406 or permission of instructor.

Review of Russian grammar, composition on assigned topics, practice in translation.

### 412 Intermediate Intensive Russian U 5 or 10

(516) W. 10 cl.

Prereq.: 103, 112 or permission of chairman.

The equiv. of 104, 405, 406. Students with credit for 104 may with permission of the chairman, register for 5 cr. hrs. instead of 10 cr. hrs. The course must be taken in its entirety.

*Kresky.*

### 420 Russian Literature in English Translation: From Pushkin to Turgenev U 5

(520) A. 4 cl.

Not open to students with credit for (613) or (620).

An introduction to the Russian novel, drama, and poetry. Major contributions of Pushkin, Lermontov, Gogol, Ostrovsky, Gontcharov, and Turgenev. *Twarog.*

### 421 Russian Literature in English Translation: From Dostoevsky to Blok U 5

(521) W. 4 cl.

Not open to students with credit for (614) or (620).

Reading and analysis of *Crime and Punishment*, *War and Peace*, *The Golovlyov Family*, as well as short stories and plays by Chekhov, Gorky, Bunin, Bely, and Andreyev. *Twarog.*



**475 Introduction to Russian Literature, U 3**  
**The Early Classics: Romanticism,**  
**the Natural School, Early Realism**

(575) A. 3 cl.

Prereq.: 104 or permission of instructor.

Conducted in Russian.

Readings from representative authors such as Pushkin, Lermontov, Gogol, Turgenev. *Kresky*.

**476 Introduction to Russian Literature, U 3**  
**The Russian Realists**

(576) W. 3 cl.

Prereq.: 104 or permission of instructor.

Conducted in Russian.

Readings from representative authors such as Turgenev, Dostoevsky, Tolstoy, Goncharov. *Kresky*.

**477 Introduction to Russian Literature, U 3**  
**Impressionism, Critical Realism,**  
**Symbolism, Socialist Realism**

(577) Sp. 3 cl.

Prereq.: 104 or permission of instructor.

Conducted in Russian.

Readings from representative authors such as Chekhov, Gorky, Bunin, Blok, and Sholokhov. *Kresky*.

**571 Russian for Research G 0**

(690) A, W. 5 cl.

Prereq.: Graduate standing.

Basic Elements of Russian grammar.

**572 Russian for Research G 0**

(691) W, Sp. 3 cl.

Prereq.: Grade of C or above in 571 or equiv.

Repeatable twice.

Satisfactory completion of this course (grade A or B) will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.

**609 Advanced Reading, U G 3**  
**Conversation, and Composition I**

A. 3 cl.

Prereq.: 10 hrs. of 400-level courses in Russ., including 405, 406, or permission of instructor.

Reading of contemporary prose and verse, presentation of oral and written reports, drill in intonation patterns, translation from English into Russian.

**610 Advanced Reading, U G 3**  
**Conversation, and Composition II**

W. 3 cl.

Prereq.: 609 or permission of instructor.

**611 Advanced Reading, U G 3**  
**Conversation, and Composition III**

Sp. 3 cl.

Prereq.: 610 or permission of instructor.

**612 Study Tour of the USSR U G 15**

(517) Sp.

Prereq.: Minimum of 25 cr. hrs. of Russian or equiv. and permission of department chairman.

At The Ohio State University students will be given advanced work in conversation and reading in order to prepare for the tour. In the USSR only Russian will be spoken. Some formal instruction will be given daily by the tour leaders. *Kresky*.

**622 Russian Literature in English U G 5**  
**Translation: Soviet Literature**

Sp. 4 cl.

Prereq.: 420, 421, or permission of instructor.

Not open to students with credit for (616).

A survey of Soviet Russian literature from 1917 to the present. Reading of representative authors such as Fadeyev, Leonov, Fedin, Sholokhov, and Pasternak. *Oulanoff*.

**630 Applied Linguistics for the U G 5**  
**Russian Major**

A. 3 cl.

Prereq.: 405, 406.

Introduction to the categories and techniques of applied linguistics, especially phonemic and morphemic analysis; all examples drawn from Russian and English. *Naylor*.

**635 Practical Russian Pronunciation U G 5**

Sp. 3 cl., 2 labs.

Prereq.: 405, 406.

Lectures and practical exercises; use of phonetic symbols; corrective exercises; problems of teaching pronunciation.

**640 Contrastive Structures of U G 5**  
**Russian and English**

W. 3 cl.

Prereq.: 405, 406.

Comparison of the structures of the Russian and English languages stressing practical difficulties in pronunciation and grammar.

**GENERAL PREREQUISITES FOR 600 LEVEL**  
**COURSES IN LITERATURE**

Nine credit hours in Russian Literature courses 400 level or above.

**645\* Survey of Russian Poetry U G 5**

W. 3 cl.

Prereq.: 475, 476, 477.

Development of poetry from the 18th century to the present; readings from major periods and movements. *Chalamsa*.

**650†\* Dostoevsky U G 5**

A. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Critical analysis of the major novels and shorter works. The intellectual and literary development of Dostoevsky. *Silbajoris*.

**651†\* Tolstoy U G 5**

W. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Analysis of all major works including the novels, plays, stories, and important polemical works. *Silbajoris*.

**652†\* Turgenev and Chekhov U G 5**  
*Sp. 3 cl.*

*Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.*

Critical analysis of the major novels, plays, and short stories of both writers. Stylistic similarities and differences.

**653\* Russian Drama U G 5**  
*A. 3 cl.*

*Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.*

Emphasis on period from 1850 to present day. Ostrovsky, Chekhov, Gorky, Andreyev, Blok, and Soviet writers Leonov and Kataev. *Chalema.*

**654\* Gogol U G 5**  
*W. 3 cl.*

*Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.*

Critical analysis of all major works including novels, plays, short stories, and important polemical works. *Chalema.*

**655\* Writers of Satire and Byt U G 5**  
*Sp. 3 cl.*

*Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.*

Critical analysis of the major works of Aksakov, Goncharov, Saltykov-Shchedrin, and Leskov. *Oulanoff.*

**810 Old Church Slavonic G 5**  
*W. 5 cl.*

Study of the earliest recorded Slavic language. Reading and linguistic interpretation of original documents. *Robinson.*

**811†\* Readings in Old Russian G 5**  
*Sp. 3 cl.*

Reading of texts from the medieval period including both Old Church Slavonic texts and the later Old Russian texts.

**820 History of the Russian Language G 3**  
*(720) W. 3 cl.*

A survey of phonetic, morphological, and syntactical changes from the period of Common Slavic to the present. The formation of the Russian literary language. *Naylor.*

**821 The Structure of Russian G 3**  
*(721) Sp. 3 cl.*

A structural analysis of Modern Russian. Essential for those intending to teach Russian or become translators. *Naylor.*

**822†\* Russian Phonetics G 5**  
*(722) A. 3 cl.*

*Prereq.: 407, and 475-477, or permission of instructor.*

The sounds, stress, rhythm, and intonation of Russian. Lectures and practical work in the Listening Center.

**830\* Russian Literature to 1650 G 5**  
*(760) A. 3 cl.*

Emphasis on literature of the Kievan period. *Silbajoris.*

**831\* Russian Literature 1650-1800 G 5**  
*(761) W. 3 cl.*

The baroque period, classicism and sentimentalism. Emphasis on the classical period of the 18th century. *Silbajoris.*

**840\* Pushkin and His Time G 5**  
*(670) Sp. 3 cl.*

*Prereq.: 475-477 or permission of instructor.*

Analysis of *Eugene Onegin* as poetry and an encyclopedia of the times. Social, political, cultural trends in the 1820's and 1830's. Romantic Poets. *Silbajoris.*

**841†\* Russian Poetry to 1890 G 5**  
*W. 3 cl.*

Readings from the major poets of the 18th and 19th centuries: Lomonosov, Zhukovsky, Pushkin, Lermontov, Tiutchev, Fet, Nekrasov, Polonsky, and others.

**842†\* Russian Poetry From 1890 to Present G 5**  
*Sp. 3 cl.*

Major movements and poets: Blok, Bely, Briusov, Balmont, Mayakovsky, Gumilyov, Akhmatova, Esenin, Pasternak, Tvardovsky, Evtushenko, and others.

**850† Seminar in Russian Literature to 1820 G 3-5**  
*W. 2 cl.***851 Seminar in Russian Literature 1820-1917 G 3-5**  
*A. 2 cl.*

*Silbajoris.*

**852 Seminar in Soviet Literature G 3-5**  
*(850) W. 2 cl.*  
*Oulanoff.*

## Serbo-Croatian

Office: 316 University Hall, 216 North Oval Drive.  
ASSISTANT PROFESSOR †NAYLOR.

**601\* Serbo-Croatian U G 3**  
*A. 3 cl.*

*Prereq.: Russ. 103 or 112 or permission of instructor.*

**602\* Serbo-Croatian U G 3**  
*W. 3 cl.*

*Prereq.: 601 or permission of instructor.*

**603\* Serbo-Croatian U G 3**  
*Sp. 3 cl.*

*Prereq.: 602 or permission of instructor.*



**604†\* Intermediate Serbo-Croatian U G 3***A. 3 cl.**Prereq.: 603 or equiv.*

Reading of simple Serbo-Croatian texts from the 19th century.

**605†\* Intermediate Serbo-Croatian U G 3***W. 3 cl.**Prereq.: 604 or permission of instructor.*

Reading texts of moderate difficulty, conversation, simple compositions.

**606†\* Intermediate Serbo-Croatian U G 3***Sp. 3 cl.**Prereq.: 605 or permission of instructor.*

Reading from modern Serbo-Croatian literature, practice in writing and speaking.

## Slavic Languages and Literatures

Office: 316 University Hall, 216 North Oval Drive.

**230† Slavic Languages and Cultures U 5***(530) A. 4 cl.**Taught in English.*

Historical distribution, contemporary situation, language policies of Slavic nations; interaction of Slavic cultures and their congeners and neighbors; mutual impact of Slavic languages and cultures.

**617†\* Slavic Literature in English U G 3**  
**Translation: From the Beginning through Romanticism***A. 3 cl.*

The epic tradition, renaissance, baroque literature, classicism, pre-romanticism, and romanticism, the great Slavic literary awakening. *Twarog.*

**618†\* Slavic Literature in English U G 3**  
**Translation: From Realism and Symbolism to World War II***W. 3 cl.*

Emphasis on development of the novel and drama in Czech, Polish, and Ukrainian literature: Capek, Hasek, Sienkiewicz, Reymont, Franko, and Ukrainka. *Twarog.*

**693 Individual Studies in Slavic U G 2-10***(701) A, W, Sp.**Prereq.: Permission of the department chairman.**Repeatable.***783 Honors Course U 3-5***A, W, Sp.*

*Prereq.: 4th yr. standing; a grade of A in at least half of the Slavic courses taken and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the College Committee on Honors. Failure to receive a grade of B in this course is a disqualification for special honors.*

*Repeatable to a maximum of 15 cr. hrs.***794 Special Group Studies in Slavic U G 2-10***Prereq.: Permission of chairman.***860 An Introduction to the Slavic Languages G 3***(730) A. 3 cl.*

A general survey of all the Slavic languages and their common features. *Robinson.*

**861\* History of South Slavic Languages G 5***(731) A. 3 cl.*

*Prereq.: Good command of Russ. and acquaintance with a second Slavic language or permission of instructor.*

Bulgarian, Macedonian, Serbo-Croatian, and Slovenian, with emphasis on Serbo-Croatian and its relation to the other South Slavic Languages. *Naylor.*

**862†\* History of the West Slavic Languages G 5***(732) A. 3 cl.*

*Prereq.: Good command of Russ. and acquaintance with a second Slavic language or permission of instructor.*

Polish, Czech, Slovak, Polabian, Kashub, and Sorbian, with special emphasis on Polish and its relation to the other West Slavic Languages. *Robinson.*

**870 Seminar in Slavic Philology G 3-5***A. 2 cl.*

Historical and comparative studies in the Slavic languages and related language families, including Baltic and Finno-Ugric. *Robinson.*

**871 Seminar in Slavic Linguistics G 3-5***W, Sp. 2 cl.*

Descriptive and transformational studies in Russian and the other Slavic languages.

**875 Seminar in Slavic Literature G 3-5***(830) Sp. 2 cl.*

Selected topics from Medieval and Modern Literature. *Krzyzanowski.*

**880 Bibliography and Method G 3***A. 2 cl.*

Required of all candidates for graduate degrees. To acquaint graduate students with the tools, problems, and methods of linguistic and literary research.

**881 Private Reading G 2-5***A, W, Sp.**Prereq.: Permission of department chairman.***884† Special Group Studies in Slavic G 2-10***Prereq.: Permission of chairman.***981 Private Reading G 2-10***A, W, Sp.**Prereq.: Permission of chairman.***999 Research in Slavic G Arr.***(950) A, W, Sp.*

Research for thesis purposes only.

## Social Work

Office: 300 Stillman Hall, 1947 North College Road.

PROFESSORS †MEDHURST (Director), BATCHELOR (Emeritus), †CORNELL, †LIVINGSTON, MARK (Emeritus), †L. SCHNEIDERMAN, and †SHIMP; ASSOCIATE PROFESSORS †BEHLING, BLACKBURN (Emeritus), †CRYMES, †DAYKIN, †DECKER, †HAMILTON, †MUELLER, †NICHOLS, †SISSON, and †STELLMAN; ASSISTANT PROFESSORS †BENDEKOVIC, †BOUNOUS, †CUNNINGHAM, D'ANGELO, FOSTER, †GOOD, †HAYWARD, †LONGO, McMILLIN, †PALMER, †PANTALOS, †RINDFLEISCH, H. SCHNEIDERMAN, and ZUPANCIC; INSTRUCTOR ANDERSON.

### 323 Social Welfare as a Social System I U 5

(599) A, W, Sp. 4 cl.

Prereq.: Soc. 101 or 201 or 220 or equiv.

An introduction to the values, value conflicts, and major goals in the American social welfare system.

### 325 Social Welfare as a Social System II U 5

(600) A, W, Sp. 4 cl.

Prereq.: 323 or equiv.

Examination of the interrelationships among various social problems, social welfare programs, policy issues, and the role of social work in terms of the American social welfare system.

### 327 Social Welfare as a Social System III U 5

(601) A, W, Sp. 4 cl.

Prereq.: 325 or equiv.

The study of the organization and integration of services in the American social welfare system.

### 340 Social Investigation and Social Statistics U 5

(511) A, W, Sp. 3 cl., 1 2-hr. lab.

Prereq.: Soc. 101 or 201 or 220 or equiv.

Introduction. History of survey research; principles of science; planning studies; interviewing; coding and tabulating; elementary statistics. Laboratory instruction in calculating, card punching, sorting and tabulating equipment. Cornell, Crymes, Behling.

### 423 Social Work and Social Welfare I U 5

A, W, Sp. 4 cl., 1 hr. arr.

Prereq.: 327 or equiv. and 4th yr. standing.

An examination of the function of social work and the values, knowledge base, skills, and methods used in providing social services.

### 425 Social Work and Social Welfare II U 5

A, W, Sp. 4 cl., 1 hr. arr.

Prereq.: 423 and 4th yr. standing.

A critical examination of the field of social work practice.

### 427 Social Work and Social Welfare III U 5

A, W, Sp. 4 cl., 1 hr. arr.

Prereq.: 425 and 4th yr. standing.

Analysis of the professional nature of social work, its development, relation to other professions, to ethics, ideologies, and personal responsibility to client and society.

### 489 Social Welfare Experience U 3-5

(675) A, W, Sp. Social Agency Assignment and 1 2-hr. seminar.

Prereq.: 3rd or 4th yr. standing and permission of instructor.

Repeatable to maximum of 10 cr. hrs.

Individualized and supervised observation and experience in selected social welfare agencies and institutions. Comprehensive report by student and agency supervisor required. Staff.

### 493 Special Problems U 1-5

(699) A, W, Sp.

Prereq.: Soc. Welfare 3rd or 4th yr. standing, 327, and permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Individual or group study projects on problems and services in selected area of social welfare. Report required.

### 503 Juvenile Delinquency and Its Treatment U G 5

(627) A, W, Sp. 5 cl.

Prereq.: 325, Anthropol. 261, Soc. 410 or equiv.

Juvenile Delinquency as a social problem. Methods of treatment and prevention, including juvenile courts, clinics, probation, parole, correctional institutions, child placement, and recreational programs. Daykin.

### 505 Social Implications in Rehabilitation U G 3

(637) A, Sp. 3 cl.

Prereq.: 327 and 10 cr. hrs. of Psychol. or equiv.

Not for graduate credit to students in Soc. Work.

The significance of disability and employability in their social, medical, and industrial application; rehabilitation as a process; current concepts. Hamilton.

### 507 Social Work and Health Services U G 3

W. 3 cl.

Prereq.: 327 or equiv., or 10 cr. hrs. in Psychol. or Soc. and 4th yr. standing.

The nature, organization and function of programs, facilities in the health practice field; the social and economic implication of chronic disease. Hamilton.

### 509 Legal Aspects of Social Work U G 3

(679) A, Sp. 3 cl.

Prereq.: 327 or equiv. and 10 cr. hrs. of Soc.

Not for graduate credit to students in Soc. Work.

Law as a means of social control. Study of case, statute, and constitutional law most frequently involved in social work practice. Legal aid. Daykin.

### 520 Social Welfare Policy and Services I P G 3

(701) A. 3 cl.

Social Welfare as a social institution. Its development, philosophical bases and relation to societal changes. Livingston, Decker.

### 522 Social Welfare Policy and Services II P G 3

(709) W. 3 cl.

Prereq.: 520 or equiv.

Development of social welfare policy and its expression through governmental and voluntary agency programs and services. Special focus upon income maintenance. Livingston, Hayward.



**526 The Administration of Social Work Agencies P G 3**

(848) W. 3 cl.

Prereq.: Soc. Work grad. standing.

An introduction to the basic factors in the administration of social agencies. *Livingston, Decker.*

**530 Human Behavior and Social Environment I P G 3**

(705) A. 3 cl.

Prereq.: Soc. Work grad. standing.

Determinants of social functioning examined at the individual, group and community levels of analysis with attention to stress, sub-cultural and socio-economic processes and conditions. *Bounous, Bendekovic, Decker.*

**532 Human Behavior and Social Environment II P G 3**

(706) W. 3 cl.

Prereq.: 530 or equiv. and Soc. Work grad. standing.

Determinants and dynamics of individual and family social functioning as typically experienced and as occurs in response to stress, from conception through pre-school years. *Bounous, Bendekovic, Decker.*

**534 Human Behavior and Social Environment III P G 3**

(708) Sp. 3 cl.

Prereq.: 532 or equiv. and Soc. Work grad. standing.

Determinants and dynamics of individual and family social functioning as typically experienced and as occurs in response to stress, from latency through the aging years. *Bounous, Bendekovic, Decker.*

**540 Research Methods in Social Work P G 5**

(720) Sp. 2 2-hr. cl., 1 2-hr. lab.

Prereq.: 340 or equiv. and Soc. Work grad. standing.

To prepare students to formulate a social work research problem, apply an appropriate design and evaluate and use research reports. *Behling, Cornell, and Crymes.*

**550 Social Casework I P G 2**

(713) A. 2 cl.

Prereq.: Soc. Work grad. standing, 520 concur.

Introduction to the basic principles and ideas of Social Casework as one Social Work method. *Schneiderman, Hayward.*

**552 Social Casework II P G 3**

(714) W. 3 cl.

Prereq.: Soc. Work grad. standing, 550 or equiv.

The principles and processes of the Social Casework method and their differential applications. *Hayward, Schneiderman, Rindfleisch.*

**554 Social Casework III P G 3**

(823) Sp. 3 cl.

Prereq.: Soc. Work grad. standing, 552 or equiv.

Continuation of 552. *Mueller, Sisson, Rindfleisch.*

**562 Community Organization for Social Welfare I P G 2**

(730) A, W. 2 cl.

Prereq.: Soc. Work grad. standing, 520, 530 or equiv.

Function of social worker in developing effective community social welfare programs. Principles and methods of determining community needs and stimulating community effort toward improved program development. *Stellman, Shimp.*

**564 Community Organization for Social Welfare II P G 3**

(731) W. 3 cl.

Prereq.: Soc. Work grad. standing, 562 or equiv.

Values, assumptions and social science propositions underlying planned and consciously effected change in the interest of social welfare. *Stellman.*

**570 Social Group Work I P G 2**

(763) A, W. 2 cl.

Prereq.: Soc. Work grad. standing, 520 or concur.

Principles and concepts. Worker's role in enabling members of a group to use group experience for personal growth and development of social responsibility. *Longo, Bendekovic.*

**572 Social Group Work II P G 3**

(764) W. 3 cl.

Prereq.: Soc. Work grad. standing, 570 or equiv.

Role of worker in effecting group and program processes toward meeting individual member needs and group objectives. *Longo, Bendekovic.*

**574 Social Group Work III P G 3**

(865) Sp. 3 cl.

Prereq.: Soc. Work grad. standing, 572 or equiv.

Role and professional intervention of the worker in the particularizing of group members. *Nichols, Longo.*

**585 Agency Laboratory Experience I P G 3-8**

(775) A, W, Sp.

Prereq.: Soc. Work 1st yr. grad. standing.

Arranged by the student's faculty adviser. Repeatable to a maximum of 18 cr. hrs.

Planned visits to social agencies, group analysis of observation, followed by assignment to specific agency for beginning responsibilities with recipients of agency service. *Staff.*

**600 Seminar on Methods of Social Work in Corrections P G 3**

(870) Sp. 3 cl.

Prereq.: Soc. Work grad. standing, 554, 564, 574 or equiv.

Analysis of selected problems and issues in social work in the field of corrections. *Good.*

**603 Interpretation of Social Work P G 2**

(712) Sp. 2 cl.

Prereq.: Soc. Work grad. standing, 562 or equiv.

Communication, interpretation and public relations in social work. Theoretical and practical aspects of methods, processes and principles of interpretation. *Shimp.*

- 624 Social Welfare Policy and Services III** P G 3  
(851) Sp.  
Prereq.: Soc. Work grad. standing, 522, 526, or equiv.  
Analysis and critical evaluation of social welfare policy and issues. Role of the profession in affecting policy. Livingston, Longo.
- 630 Human Behavior and Social Environment IV** P G 4  
(862) A. 4 cl.  
Prereq.: 534 and Soc. Work grad. standing  
Presentation and critical examination of personality, interactional, small group, organizational and community concepts and approaches used in analyzing social dysfunctioning. Bounous, Bendekovic, and Decker.
- 640 Special Research Problems** P G 1-5  
(801) A, W, Sp.  
Prereq.: Soc. Work grad. standing and permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.  
Assigned reading or individual research, informal conferences, and written reports. Registration to be followed by letter indicating field of social work as listed.  
a. Corrections.  
b. Social Group Work.  
c. Social Work Administration.  
d. Social Work Research.  
e. Social Casework.  
f. Community Organization.  
g. Rehabilitation of the Handicapped.  
h. Psychiatric Social Work.  
i. Other Areas.
- 650 Social Casework IV** P G 3  
(824) A. 3 cl.  
Prereq.: Soc. Work grad. standing, 554 or equiv.  
An advanced course in Social Casework practice theory. Sisson, Bounous, Mueller.
- 652 Social Casework V** P G 3  
(826) W. 3 cl.  
Prereq.: Soc. Work grad. standing, 650 or equiv.  
Continuation of 650. Sisson, Bounous, Mueller.
- 660 Community Organization for Social Welfare III** P G 3  
(881) Sp. 3 cl.  
Prereq.: Soc. Work grad. standing, 564 or equiv.  
Role of professional worker in setting goals. Evaluation of community effort in building balanced programs. Effects of national agencies on local programs. Stellman.
- 662 Planning Social Welfare Services** P G 4  
(837) A. 4 cl.  
Prereq.: Soc. Work grad. standing, 564 or equiv.  
Financing welfare services. Planning and conducting fund raising campaigns and budgeting. Problems of planning, specialized services. Designing and adjustment of programs to meet welfare needs. Stellman, Shimp.
- 670 Social Group Work IV** P G 3  
(866) A. 3 cl.  
Prereq.: Soc. Work grad. standing, 574 or equiv.  
Critical study of contemporary social group work practice. The group as a means and context for therapeutic experience. Nichols.
- 672 Social Group Work V** P G 3  
(867) W. 3 cl.  
Prereq.: Soc. Work grad. standing, 670 or equiv.  
Critical study of contemporary social group work practice. Focus upon differential intervention in special purpose groups. Longo, Bendekovic.
- 685 Agency Laboratory Experience II** P G 6-15  
(875) A, W, Sp.  
Prereq.: Soc. Work 2nd yr. grad. standing, and 585 or equiv.  
Repeatable to a maximum of 26 cr. hrs.  
Application of social work theory in selected social agency settings. Joint direction and evaluation by agency staff and faculty.
- 694 Area Seminars in Social Work** P G 1-4  
(802) A, W, Sp.  
Prereq.: Soc. Work 2nd yr. grad. standing.  
Organized seminars by areas of social work practice. Registration to be followed by letter indicating area.  
a. Corrections.  
b. Social Group Work.  
c. Social Work Administration.  
d. Social Work Research.  
e. Social Casework.  
f. Community Organization.  
g. Rehabilitation of the Handicapped.
- 840 Seminar in Social Work Research I** G 3  
(857) A. 2 cl. One field project.  
Prereq.: Soc. Work grad. standing, 540, 542, or equiv. and permission of instructor.  
Evaluation of problems in planning and administration of social work research projects. Cornell, Crymes and Staff.
- 841 Seminar in Social Work Research II** G 3  
(858) W. 2 cl. One field project.  
Prereq.: Soc. Work grad. standing, 840 or equiv. and permission of instructor.  
Evaluation of methods and findings of selected studies in the various fields of social work. Cornell, Crymes and Staff.
- 842 Seminar in Social Work Research III** G 3  
(859) Sp. 2 cl. One field project.  
Prereq.: Soc. Work grad. standing, 841 or equiv. and permission of instructor.  
Evaluation of research related to substantive issues in social work—movement, role of social worker, prediction, brief service, multi-problem family, need. Cornell, Crymes.
- 899 Interdepartmental Seminar** G 1-5  
A, W, Sp.  
(See under Interdepartmental Seminars.)
- 999 Research in Social Work** G Arr.  
(950) A, W, Sp.  
Research for thesis or dissertation purposes only.



# Sociology

Office: 112 Hagerty Hall, 1775 South College Road.  
 PROFESSORS †SLETT (Chairman), BERRY (Emeritus), †BULLOCK, †CLARKE, †CUBER, DENUNE (Emeritus), †DINITZ, †DYNES, †HAAS, †JONASSEN, †MANGUS, †MUNSON, †NAGI, †OYLER, †QUARANTELLI, and †RECKLESS; ADJUNCT PROFESSORS FOLKMAN and PASAMANICK; ASSOCIATE PROFESSORS †CORWIN, †EYNON, †GARBIN, †HELFRICH, NISSEN (Emeritus), †NOEL, †SCHWIRIAN, †VANDERZANDEN, and †WARSHAY; ASSISTANT PROFESSORS CLATWORTHY, CLEAVER, †FLETCHER, †HALL, †KNUDSEN, †LUDWIG, †THOMAS, and †VAUGHAN.

**101 Introductory Sociology U 5**  
 (401) A, W, Sp. 5 cl.  
*Not open to students with credit for 201 or equiv. or Rur. Soc. 105 or equiv.*

A study of the fundamental concepts of sociology and an introduction to the analysis of social problems. *Cuber.*

**201 Fundamentals of Sociology U 5**  
 (507) A, W, Sp. 5 cl.  
*Prereq.: Hist. 123 or equiv.*  
*Not open to students with credit for 101 or equiv.*

A study of the nature of society and the factors affecting its development, culture, personality; groups and institutions; selected social problems. *Staff.*

**202 Social Trends and Problems U 5**  
 (402) A, W, Sp. 5 cl.  
*Prereq.: 5 cr. hrs. of Soc. or equiv. with permission of instructor.*

Analysis of recent social trends and contemporary social problems. *Dinitz and Staff.*

**204 The Standard of Living U 4**  
 (510) Sp. 4 cl.  
*Prereq.: 5 cr. hrs. in Soc. or equiv. and permission of instructor, or Econ. 201 or equiv.*

A consideration of the content of the various standards of living in American society, their economic and social significance. Problems in family budgets and retail buying. *Thomas.*

**206 Social Implications of Low Income U 3**  
 (518) W. 3 cl.  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

A study of low-income peoples, especially concerning the effect of low-income on them, and their consequent social participation. *Vaughan.*

**207 Social Change U 3**  
 (562) A, W, Sp. 3 cl.  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

Recent social changes, especially in Western civilization and the United States. Types of societies in historical perspective. Requirements of a good society. *Eynon.*

**208 Sociological Interpretation of Modern Values U 5**  
 (620) Sp. 5 cl.  
*Prereq.: 101 or 201 or equiv.*

The identification, classification, and measurement of values; values in relation to personality, social structure, and social problems; analysis of selective evaluative interpretations of contemporary society.

**220 Sociology of Education U 5**  
 (407) A, W, Sp.  
*Prereq.: 5 cr. hrs. in Soc.*

Current social trends as they affect education. Backgrounds of school children, social status of teachers, role of power and bureaucracy. *Corwin, Thomas, Vaughan.*

**250 Types of Sociological Inquiry U 5**  
 (530) A, W, Sp. 3 cl., 2 2-hr. lab.  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

Introduction to sociological research techniques, methodological approaches, and relevant quantitative procedures. *Hall.*

**280 Race Problems in the United States U 3**  
 (506) A, W, Sp. 3 cl.  
*Prereq.: 5 cr. hrs. in Soc.*  
*Not open to students with credit for 480 or equiv.*

The cultural background, distribution, and adjustments of selected racial and ethnic groups in the United States. *Vander Zanden, Noel.*

**290 The Sociology of Urban Life U 5**  
 (505) A, W, Sp. 4 cl., 1 2-hr. lab.  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

The place of the city in social organization. The emergence, nature, and problems of modern urbanism. Projects based on census and field data. *Jonassen, Schwirian, Cleaver.*

**330 Factors in Successful Marriage U 3**  
 (520) A, W, Sp. 3 cl.

An understanding of successful married life. Types of problems faced by dating and married couples and the methods whereby they may be dealt with successfully. *Clatworthy, Fletcher.*

**395 Population Dynamics and Social Change U 3**  
 (638) W, Sp.  
*Prereq.: 10 cr. hrs. of Soc. or equiv. and permission of instructor.*

Changes in size, composition and distribution of populations, the dynamics underlying them, and their social consequences.

**401 Social Control U 3**  
 (663†) Sp. 3 cl.  
*A theory of social control and analysis of selected cases of social control. Text, class reports, projects.*

**403 Contemporary Soviet Society U 5**  
 (621) W. 5 cl.  
*Prereq.: 10 cr. hrs. in Soc. and 15 cr. hrs. in other social sciences or permission of instructor.*

Organization, development, and problems of the Communist Party, the collective farm, the school, professional occupations, economic planning, and other contemporary Soviet institutions.

- 405 Collective Behavior and Social Movements** U 3  
(623) A, W, Sp. 3 cl.  
Examination of the dynamic social processes characteristic of mass societies through an analysis of crowds, mobs, cults, publics, and the initial stages of social movements. *Quarantelli, Warshay.*
- 410 Criminology** U 5  
(625) A, W, Sp. 5 cl.  
The nature, variation, and causes of crime and delinquency. Studies of criminal liability, criminal careers, and organized racketeering. *Dinitz, Eynon, Reckless.*
- 411 Penology** U 5  
(626) A, Sp. 5 cl.  
Prereq.: 410 or equiv.  
The treatment of adult offenders in detention and incarceration; short and long institutions. Field trips required. *Eynon.*
- 430 The Modern Family** U 4  
(600) A, W, Sp. 4 cl.  
Impact of modern culture upon the family, including size of family, member relationships, economic problems, divorce, desertion, and status of women. *Clarke, Knudsen.*
- 432 Types of Family Organization** U 4  
(601†) W. 4 cl.  
Prereq.: 430 or equiv.  
Analysis of family organization in various societies and groups; problems of comparative study.
- 434 Social Orientation of Children** U 4  
(680) W. 4 cl.  
A study of the ways in which society socializes children. Current breakdown in the socializing processes and implications for the school and other educational agencies. *Clarke.*
- 440 Medical Sociology** U 3  
(650) A, W.  
Prereq.: 10 cr. hrs. in Soc. or equiv. and permission of instructor.  
An analysis of the sociological factors in illness and health, as well as the role of medicine and the health professions in modern society. *Nagi, Fletcher.*
- 462 Sociology of Complex Organizations** U 3  
(644) Sp.  
Prereq.: 10 cr. hrs. in Soc. or permission of instructor.  
Functioning of large complex social groupings. Goals, structures, coordination, dispersion, survival, change as seen in various organizations: e.g.—governmental, educational, religious, business, and occupational organizations. *Haas.*
- 463 Social Stratification** U 4  
(676) A, W, Sp. 4 cl.  
Class distinction as phase of social differentiation. Origin and characteristics of social class. Significance for modern society of class consciousness, class struggle, and social mobility. *Dynes, Corwin.*
- 464 Human Relationships in Industry** U 3  
(612) A, W, Sp. 3 cl.  
Social processes and problems associated with contemporary industry including growth of formal and informal organizational structure, communication processes, attitude problems and morale. *Helfrich.*
- 465 Work and Leisure in Mass Society** U 4  
(645) Sp. 4 cl.  
An analysis of current relationships between work and leisure, emphasizing social implications of increased leisure time, and changing conceptions of work and leisure. *Clarke.*
- 467 Religious Institutions in Modern Society** U 3  
(648) A, W, Sp. 3 cl.  
The social role of religious institutions and beliefs, with particular reference to the United States; the relation between religion and other aspects of society. *Dynes, Knudsen.*
- 470 Social Factors in Personality** U 4  
(622) A, W, Sp. 4 cl.  
Analysis of relationships between social structure and personality. Language: its consequences for social behavior. Socialization: learning of motives and social roles. Personality: development, organization, disorganization. *Quarantelli, Warshay, Thomas.*
- 480 Race Relations** U 3  
(604) A, W, Sp. 3 cl.  
A survey of the problems arising from the contacts of people who differ as to race and culture. *Vander Zanden, Noel.*
- 488 Development of Sociological Thought** U 5  
(660) A, W, Sp. 5 cl.  
Prereq.: 15 cr. hrs. in Soc. or equiv.  
A survey of major concerns and conceptions in sociology in relation to their social-historical setting, from 1800 to the present time. *Vaughan, Warshay.*
- 492 The School and the Community** U 3  
(678) W. 3 cl.  
The school as a social institution in the American community. The sociological importance of community structures, processes, and problems in determining school-community relationships. *Jonassen.*
- 509 Culture Patterns and Personality** U G 3  
(624) Sp. 3 cl.  
Prereq.: 470 or equiv. or Psychol. 320 or equiv.  
Anthropological contributions to the field of social psychology. Variations in personality as associated with variations in culture. The range of personality differences within various cultures. *Bourguignon.*
- 523 Sociological Analysis of Educational Organizations** U G 5  
W. 5 cl.  
Comparisons of the structures and functions of educational systems, elementary through university; recruitment and allocation of personnel and resources, power, conflict, and boundary maintenance.



**560 Social Organization in a Changing World U G 4**

(677) A. 4 cl.

An examination of present institutional organization in American society. The impact of world problems upon American culture. *Cuber.*

**590 The Community U G 4**

(614) A, W. 4 cl.

Development of the modern community. Approaches to the study of communities. Significance of processes and value systems for community organization and disorganization. *Jonassen, Munson.*

**608 Sociological Aspects of Mass Communication U G 3**

(627) W. 3 cl.

Selective analysis of communicators, contents, audiences, and effects of mass media. Research procedures, findings, and theoretical formulation, drawn primarily from studies of popular culture. *Quarantelli.*

**615 Control and Prevention of Crime and Delinquency U G 3**

(725) A. 1 2-hr. cl. One field project.

Prereq.: 410 or equiv.

Analysis of the operational effectiveness of special measures and programs pointed toward the control and prevention of crime and delinquency. *Reckless.*

**650 Sociological Research Methods U G 3**

(630) A, W. 3 cl.

An introduction to the analysis of sociological data. Measurement theory and techniques of interpretation. Sampling procedures in sociological research and implications for inference and generalization. *Bullock, Nagi, Schwirian.*

**661 Analysis of Small Groups U G 4**

(643) A. 4 cl.

Prereq.: 10 cr. hrs. in Soc. and permission of instructor.

Analysis of group structure and processes; examination of roles, interpersonal structure, leadership; observation of groups in laboratory and non-laboratory settings.

**666 Political Sociology U G 3**

W. 3 cl.

Examination of structural and cultural factors as related to the nature of political systems; consideration of the organization and roles of political and para-political groups. *N. Hall.*

**680 General Sociology U G 4**

(629) A. 4 cl.

A critical examination of the more fundamental ideas and concepts of modern scientific sociology. *Warshay.*

**687 Development of Social Thought U G 4**

(668†) A.

Prereq.: 10 cr. hrs. in Soc. or equiv. and permission of instructor.

A sociological analysis of Western ideas on social relations before the advent of the social sciences.

**693 Special Problems U G 1-4**

(700) A, W, Sp.

Prereq.: 10 cr. hrs. in Soc., permission of instructor.

- .01 Sociological Theory
- .02 Social Organization and Planning
- .03 Medical Sociology
- .04 Criminology and Penology
- .05 Sociology of Education
- .06 Race Relations
- .07 Social Psychology
- .08 The Family
- .09 Research Methodology
- .10 Urban Sociology
- .11 Undergraduate Seminar on Contemporary Sociological Issues
- .12 Unclassified

**Introduction to National Security**

(See Nat. Sec. Pol. S. 703)

**704 Problems in the Design of Sociological Research U G 3**

(707) A, W, Sp. 3 cl.

Prereq.: 250 or equiv.

Repeatable to a maximum of 9 cr. hrs. Individual sections may not be repeated.

Topics:

- .01 A. Development and verification of Sociological Theory
- .02 W. Experimental Research Methods
- .03 Sp. Advanced Analysis of Sociological Data

**752 Methods of Social Measurement U G 3**

(706) A, Sp. 3 cl.

Prereq.: 650 or equiv. or Soc. Work 540.

Approaches and techniques in the development and testing of social measurement instruments.

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785)

**Seminar in National Security Research**

(See Nat. Sec. Pol. S. 801.)

**805 Social Movements G 3**

Sp. 3 cl.

An examination of theories and research on non-traditional group efforts to change social systems and institutions; emphasis on contemporary societies and movements. *Quarantelli.*

**818 Advanced Criminology G 3**

(864) Sp.

Prereq.: 410 or equiv.

A critical study of the most important aspects of criminology. *Reckless, Eynon.*

**859 Practicum in Sociological Research G 3**

(808) W, Sp. 3 cl.

Prereq.: 704 and 752 or equiv.

Supervised practical experience in the independent execution of sociological research, the application of appropriate analytical techniques, and preparation of research reports.

**868 Seminars in Social Organization G 3**

(861) A, W, Sp.

Prereq.: Two courses in social organization and permission of instructor.

A critical examination of selected theoretical and research problems in organizations functioning in the areas listed below.

- A. Systems of Community Organization.
- W. Small Groups, Educational Organizations.
- Sp. Health Organizations.

**891 Contemporary Sociological Theory G 3**

(865) A, Sp.

Prereq.: 488 or equiv.

A critical examination of problems and issues central to developments in sociological theory. *Warshaw, Vaughan.*

- A. Recent Theoretical Trends and Issues.
- Sp. Current Schools and Systems.

**894 Sociological Analysis of the Community G 3**

(714) Sp. 3 cl.

Prereq.: 290 or 590 or equiv. and permission of instructor.

Methods, techniques, sources of data and objectives of community analysis. *Jonassen.*

**895 Seminars in Sociology G 1-4**

(900) A, W, Sp.

Fields of specialization are listed under the description of 693. Registration in 895 should be followed by a decimal indicating the field of the seminar.

**899 Interdepartmental Seminar G 1-5**

A, W, Sp.

(See under Interdepartmental Seminars.)

**999 Research in Sociology G Arr.**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

**102 Elementary Spanish U 5**

(402) A, W, Sp. 5 cl.

Prereq.: 101.

May not be taken concur. with French 101-102, Ital. 101-102, Port. 101-102.

The elements of Spanish grammar with abundant oral and written exercises. Development of conversational skill. Reading, vocabulary building, attention to Spanish idioms.

**103 Intermediate Spanish U 5**

(403) A, W, Sp. 5 cl.

Prereq.: 102.

Continuation of Spanish grammar, attention to idioms. Reading of short stories, plays and novels.

**104 Intermediate Spanish U 5**

(404) A, W, Sp. 5 cl.

Prereq.: 103 or 112.

Reading of Spanish plays, short stories, and novels. Emphasis on oral practice and Spanish idioms.

**105 Elementary Spanish Conversation U 5 and Composition**

(410) A, W, Sp. 5 cl.

Prereq.: 104.

Course conducted in Spain.

Intensive practice in oral and written Spanish, based on texts and periodicals concerned with contemporary Spain and Spanish America. Grammar and idiom review.

**112 Intensive Spanish U 5, 10, 15**

Su. 15 cl. Enrollment limited to 25 students.

Prereq.: Permission of department chairman.

Full Time of student required. Equiv. of 101, 102, 103.

Students with credit for 101 or the equiv. may not register for more than 10 hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 hrs. Students with credit for 103 or the equiv. may not register for credit.

Elementary and intermediate Spanish. Intensive drill in forms, syntax, vocabulary, and idiom. Reading of short stories and plays in Spanish.

**162 Elementary-Intermediate Spanish U 5 for Selected Students**

(415) W. 5 cl.

Prereq.: Grade of A in 101 and permission of department. Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

Angelo.

**163 Elementary-Intermediate Spanish U 5 for Selected Students**

(416) Sp. 5 cl.

Prereq.: 162.

Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

Continuation of 162.

**271 Spanish Literature in English U 5 Translation**

(570) W. 5 cl.

Not open to Span. majors.

Selection of major works in Spanish literature in English translation from the early Renaissance period to the present.

## Spanish

Office: 116 Derby Hall, 154 North Oval Drive.

PROFESSORS †BULATKIN (Chairman), †ARMITAGE, †BABCOCK, †FROSCH, †GRIFFIN, and ROGERS; ASSISTANT PROFESSORS ANGELO, LEVISI, PARDO, and REEVE; INSTRUCTOR †IMHOFF.

**101 Elementary Spanish U 5**

(401) A, W, Sp. 5 cl.

May not be taken concur. with French 101-102, Port. 101-102, Ital. 101-102. Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.

Elements of Spanish grammar, with oral and written exercises. Attention to ear training and oral practice. Elementary reading based on Spanish geography, history and customs.



**401 Review Grammar and Composition U 3**(518) *A, W, Sp. 3 cl.**Prereq.: 105.*

Review of Spanish grammar; composition on assigned topics and practice in translation.

**402 Intermediate Spanish Conversation and Composition U 3**(521) *A, Sp. 3 cl.**Prereq.: 105.*

Vocabulary building, practice in speaking Spanish, conversation and composition dealing with aspects of Spanish life.

**403 Intermediate Spanish Conversation and Composition U 3**(522) *W. 3 cl.**Prereq.: 105.*

Vocabulary building, practice in speaking Spanish, conversation and composition dealing with aspects of Spanish and Spanish American life.

**404 Spanish Pronunciation U 5**(519) *A, W, Sp. 5 cl.**Prereq.: 105.*

Abundant practice with corrective exercises. Some attention to problems of teaching pronunciation.

**421 Introduction to Modern Spanish Literature U 5**(517) *A, W, Sp. 5 cl.**Prereq.: 104.*

Reading and discussion of important modern works.

**422 Prose Fiction and Essays U 5**(531) *Sp. 5 cl.**Prereq.: 421.*

Reading and discussion of various types of modern prose fiction and essays.

**423 Drama and Poetry U 5**(532) *A, W. 5 cl.**Prereq.: 421.*

A selection of plays and poems representing the principal movements and tendencies of the modern period.

**571 Reading of Spanish (Basic) G 0***A, W, Sp. 5 cl.**Prereq.: Graduate standing.**Repeatable.*

Designed primarily for students who have no formal preparation in Spanish, covering basic grammar and vocabulary.

**572 Reading of Spanish (Intermediate) G 0***A, W, Sp. 3 cl.**Prereq.: Grade of C or above in 571, or equivalent preparation demonstrated by a placement test.**Repeatable twice.*

Satisfactory completion of this course (grade of A or B) will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.

**573 Reading of Spanish (Advanced) G 0***A, W, Sp. 3 cl.**Prereq.: Grade of A or B in 572, or equivalent preparation demonstrated by a placement test.**Repeatable twice.*

Satisfactory completion of this course (grade of A or B) will be accepted as evidence of a thorough reading knowledge in fulfillment of Ph.D. language requirement.

**605 Advanced Composition and Conversation U G 3***W, Sp. 3 cl.**Prereq.: 401 and 402 or 403.*

This course is conducted in Spanish. Its subject matter will be for the most part the history, customs, and manners of Spain and Spanish America. *Pardo.*

**607 Modern Spanish Syntax U G 5**(617) *A, Sp. 5 cl.**Prereq.: 421, 401, and 402 or 403.*

Systematic study of Spanish grammar with composition and other exercises based on contemporary authors. Modern tendencies in syntactic analysis.

**609 Spanish Phonetics U G 5**(620) *A. 4 cl., 1 hr. lab.**Prereq.: 421 or 401, 404 and 402 or 403.*

A detailed analysis of the phonological structure of Spanish and a contrastive comparison with English. Practical problems of pronunciation and of teaching are stressed. *Griffin, Pardo.*

**621 Cervantes U G 5**(614) *W. 4 or 5 cl.**Prereq.: 421 and 422 or 423.*

An intensive study of *Don Quixote*. *Levisi.*

**622\* Romanticism in the Hispanic World U G 3**(631) *A. 3 cl.**Prereq.: 421 and 422 or 423.*

A study of dramatists, poets, novelists, and essayists designed to bring out the literary unity of the Hispanic world in the Romantic period. *Frosch.*

**623†\* The Spanish Novel of the Nineteenth Century U G 5**(607) *A. 4 or 5 cl.**Prereq.: 421 and 422 or 423.*

A study of the development of the modern Spanish novel with particular attention to the works of Pérez Galdós.

**624\* Contemporary Spanish Fiction U G 3**(608) *W. 3 cl.**Prereq.: 421, 422 or 423.*

A study of Spanish narrative prose from the generation of '98 to the present time. *Frosch.*

**625†\* Modern Drama U G 3**(610) *W. 3 cl.**Prereq.: 421 and 422 or 423.*

A survey of European drama at the beginning of the century and a detailed study of the Spanish dramatists from Benavente to Alfonso Sastre.

**626†\* Spanish American Literature through Romanticism U G 5**

(637) A. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

A study of the chronicles and main trends in colonial Spanish American literature. Works of the Inca Garcilaso, Sor Juana and Alarcón will be included.

**627†\* Spanish American Literature since Romanticism U G 5**

(638) W. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

The advent of 'americanismo literario'. A study of the romantics and the schools that followed up to 'modernismo'.

**628 Contemporary Spanish American Fiction U G 3**

(639) Sp. 3 cl.

Prereq.: 421 and 422 or 423.

The development of narrative prose in Spanish America from 1920 to the present. *Frosch*.

**629\* The Generation of 1898 U G 3**

(640) A. 3 cl.

Prereq.: 421 and 422 or 423.

Readings in fiction, poetry and the essay from such authors as Unamuno, Azorin, Valle-Inclán, Baroja, A. Machado and J. R. Jiménez. *Babcock*.

**630 Contemporary Hispanic Poetry U G 5**

(641) Sp. 5 cl.

Prereq.: 421 and 422 or 423.

Currents of Spanish and Spanish American poetry from Rubén Darío to the present time. *Babcock*.

**631†\* Spanish Literature U G 3-5**

(645) Su. 5 cl.

Prereq.: 421 and 422 or 423.

Repeatable to a maximum of 15 cr. hrs.

**693 Individual Studies in Spanish U G 1-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

**721\* Drama of the 16th and 17th Centuries U G 5**

(611) Sp. 5 cl.

Prereq.: 421 and 422 or 423.

An intensive study of a limited number of plays of the representative dramatists of the 16th and 17th centuries.

**722\* Poetry of the 16th and 17th Centuries U G 5**

(612) A. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

Major poets and movements of the 16th and 17th centuries. *Levisi*.

**723†\* Prose of the 16th and 17th Centuries U G 5**

(613) Sp. 4 or 5 cl.

Prereq.: 421 and 422 or 423.

Selected prose works by major Renaissance and Baroque authors.

**783 Honors Course in Spanish U 3-5**

(705) A, W, Sp.

Conference, library or phonetics laboratory arr. Prereq.: 4th yr. standing with a record of A in at least half of the Span. courses and an average of B in the remainder, and permission of the department and the Honors Committee of the College.

Repeatable to a maximum of 15 cr. hrs.

This course offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course.

**794 Special Group Studies in Spanish U G 1-5**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Investigation of minor problems in the various fields of Spanish literature and language.

**811 History of the Spanish Language G 3**

(729) A. 3 cl.

Prereq.: M.A. candidacy or permission of instructor.

A survey from Roman times to the present with emphasis on cultural and social factors. The relation of language to literature. *Griffin*.

**812 Old Spanish I G 3**

(805) W. 3 cl.

Prereq.: Knowledge of Latin.

The development of Old Spanish phonology and morphology with an introduction to the reading of Old Spanish texts. *Griffin*.

**813 Old Spanish II G 3**

(806) Sp. 3 cl.

Prereq.: 812.

A continuation of Old Spanish I, with attention to syntax, vocabulary and dialectology. *Griffin*.

**820 Introduction to Medieval Literature G 3**

(730) W. 3 cl.

Prereq.: M.A. candidacy or permission of instructor.

Selected readings in Spanish poetry and prose from the beginning to the end of the fifteenth century, partly in modernized versions. *Pardo*.

**821 Old Spanish Literature G 3**

Sp.

A literary approach to medieval poetry and prose.

**831 Seminar in Spanish Literature G 2-5**

(816) A.

Prereq.: Permission of instructor.

*Pardo*



**832 Seminar in Spanish Literature G 2-5**  
(817) *W.**Prereq.: Permission of instructor.**Levai.***833 Seminar in Spanish Literature G 3-5**  
(818) *Sp.**Prereq.: Permission of instructor.**Frosch.***885 Introduction to Methods in the History and Criticism of Literature G 5**(751) *W. 5 cl.*

Selected readings in basic literary history, criticism, and theory, with practice in the use of standard bibliographical aids to scholarship. *Frosch.*

**886† Bibliography and Method G 3**  
(880) *Sp.*

A course to acquaint graduate students with problems, tools, and methods of linguistic and literary research.

**999 Research in Spanish Language or Literature G Arr.**(950) *A, W, Sp.*

Research for thesis purposes only.

## Speech

Office: 205 Derby Hall, 154 North Oval Drive.

PROFESSORS †YEAGER (*Chairman*), †BLACK, †BOWEN, †BROOKS, †FOTHERINGHAM, †GOLDEN, †HULL, †IRWIN, †KNOWER, †LEWIS, †LYNCH, †MALL, †McDOWELL, †MOSE, †SCHLANGER, †STROMSTA, SUMMERS (*Emeritus*), †WAGNER, and WILEY (*Emeritus*); ADJUNCT PROFESSOR ABERNATHY; ASSOCIATE PROFESSORS BRITIN, †CREPEAU, EWING, †GOFF, †MONAGHAN, †RILEY, and †SCHRECK; ASSISTANT PROFESSORS †BAKER, †BRANNON, CRAWFORD, GLANCY, †MORROW, †RAGSDALE, †RIEKE, †RITTER, and SCHOEN.

**035 American Speech for International Students U 5**(405) *A, W, Sp. 5 cl.*

5 cr. hrs. will be added to graduation requirements. Often taken in conjunction with Engl. 071.

Assignment to both English and the appropriate Speech course is made on the basis of examinations given at the beginning of each quarter to all new students whose native language is not English. *Black, Goff.*

**040 Personal Speech and Hearing U 0 or 3 Rehabilitation**(410) *A, W, Sp. 5 cl.*

Credit shall not count toward graduation.

For students with speech or hearing disorders.

Repeatable.

.01 Articulation

.02 Voice

.03 Stuttering

.04 Impaired Hearing

.05 Foreign Dialect

*Goff, Stromsta, Irwin, Moser.*

**105 Principles of Effective Speaking U 5**  
(401) *A, W, Sp. 5 cl.*

The principles of effective speaking. Preparation and presentation of informative and persuasive speeches. The speech processes with emphasis on speech as a thinking process. *Brooks.*

**110 Group Discussion U 5**  
(402) *A, W, Sp. 5 cl.*

Designed to develop the attitudes, skills, and knowledge of methods favorable to effective participation in discussion by conferences, committees, and other small groups.

**115 Broadcasting in America U 3**  
(425) *A, W, Sp. 3 cl.*

The development and structure of broadcasting to stimulate critical appreciation and understanding of the role and influence of television and radio in American life. *Mall, Lynch.*

**120 Training the Speaking Voice U 3**  
(509) *A, W, Sp. 3 cl.*

Not open to students with credit for 135.

Study and application of principles basic to the development of above-average skills for public speaking, acting, oral interpretation and broadcasting activities. *Riley.*

**125 Parliamentary Law U 3**  
(511) *A, W, Sp. 3 cl.*

Study of the rules of procedure by which self-governing organizations transact business. *Lawson.*

**135 Voice and Diction U 3**  
(417) *A, W, Sp. 3 cl.*

Not open to students with credit for 120.

Repeatable.

Introductory study of the principles of a satisfactory speaking voice. Designed for the student concerned about the adequacy of his speech. *Black, Moser, Irwin, Goff.*

**165 Introduction to Theatre U 5**  
(480) *A, W, Sp. 4 cl.*

A study of the theatre with emphasis upon its cultural and social influences in our society. *Crepeau, Bowen, Glancy, Ritter.*

**201 Introduction to Speech U 5**  
(416) *A, W, Sp. 5 cl.*

This course is designed for students who wish to have a broad overview and understanding of the field of speech. *Brooks.*

**205 Communication Co-Curricular Activities U 1**(A) *A, W, Sp.*

Each category repeatable to a maximum of 6 cr. hrs.

Do not register for this course without written permission of the instructor.

Participation in specialized activities.

a. Communication Laboratory Projects. *Knower.*

b. Forensics. *Lawson.*

c. Oral Interpretation. *Brooks, Schoen.*

d. Television and Radio Broadcasting.

- 209 Communication Theories and Models** U 3  
*A, W, Sp. 3 cl.*  
 Communication model characteristics; structure and function, general principles; basic processes and major types of activities; receivers and effects; motivations, value systems, and norms. *Knower, Monaghan.*
- 213 Rhetoric in Western Thought** U 5  
*W, Sp. 5 cl.*  
 Rhetorical theories as they reflected and affected society from Greece to modern times; relations to logic, ethics and poetics; the classical tradition versus sophistical concepts. *Golden.*
- 217 Rhetoric of American Issues** U 5  
*(502) A, W, Sp. 5 cl.*  
 A study of selected American orators, their speeches and the audience reactions on significant issues during 1830-1962.
- 221 Fundamentals of Oral Interpretation** U 5  
*(505) A, W, Sp. 5 cl.*  
 Introductory course to develop understanding and appreciation of literature through the oral re-creation of literary materials and critical listening. *Brooks, Schoen.*
- 225 Persuasive Communication** U 5  
*(506) A, W, Sp. 5 cl.*  
 Analysis of persuasive communication as a form of influence; the process and functions involved, its potential and limitations for individuals and organizations. *Fotheringham.*
- 229 Television and Radio Performance** U 3  
*(560) A, W, Sp. 3 cl.*  
 Role, function and responsibilities of the performer in television and radio; non-dramatic and dramatic performance before the microphone and camera; critical evaluation. *Lynch.*
- 235 Speech Functions and Responsibilities of the Teacher** U 3  
*(504) A, W, Sp. 3 cl.*  
 A study of speech and hearing deviations commonly found in the classroom and of the role of the teacher. *Schlanger.*
- 240 Bases of Oral Communication** U 3  
*(580) A, W, Sp. 3 cl.*  
 A study of the theories of the production and perception of speech. *Stromata.*
- 245 Principles of Phonetics** U 3  
*(585) A, W, Sp. 3 cl.*  
*Prereq.: 240 recommended.*  
 The available descriptions of the sounds of speech and a comparative study of the systems of representing the sounds. *Singh.*
- 250 The Development of Speech and Language in Children** U 3  
*(590) W, Sp. 3 cl.*  
 The growth of speech and language in children; theories of speech and language development; causes of speech and language aberrations. *Goff.*
- 265 Theatre Co-Curricular Activities** U 1  
*(B) A, W, Sp.*  
*Do not register for this course without written permission of the instructor.*  
*Repeatable to a maximum of 6 cr. hrs.*  
*Crepeau, Emery.*
- 270 Stage Crafts** U 5  
*A, W, Sp. 4 cl., 1 3-hr. lab.*  
*Not open to students with credit for (541).*  
 Basic aspects of scenery construction, rigging, stage lighting, and sound effects, and their integration. *Emery.*
- 275 Art of the Theatre** U 3  
*A, Sp. 3 cl.*  
 Nature of theatre art; relationships between playwright, audience, actor, designer, and director; forms and styles of production. *Ritter.*
- 280 Acting Fundamentals** U 3  
*(521) A, W, Sp. 2 2-hr. cl.*  
 The Actor's resources and methods, basic bodily movement and vocal interpretation. *Ayres, Glancy, Ritter.*
- 285 Great Ages of the Theatre** U 5  
*Sp. 5 cl.*  
 Concepts and characteristics of the great periods of the theatre of the Western World. *Morrow.*
- 305 Argumentation and Debate** U 5  
*(470) A, W, Sp. 5 cl.*  
*Prereq.: 105.*  
 Principles of reasoned discourse and their application to controversial issues. *Rieke, Lawson.*
- 315 Informative Communication** U 3  
*A, W. 3 cl.*  
 Analysis of potentials and limitations of informative communications for individuals and groups as communicates or communicators; processes and functions of informative communications in diverse situations.
- 325 Freedom, Interdependence and Responsibility in Communication** U 3  
*A, W, Sp. 3 cl.*  
 Freedom, interdependence and responsibility in communication: history and analysis of dominant trends, theories and actions. *Mall.*
- 365 Stage Arts I** U 5  
*W, Sp. 2 2-hr. cl., 1 3-hr. lab.*  
*Not open to students with credit for (522).*  
 Techniques of play analysis, interpretation, composition, movement, rhythm and tempo; their integration in acting and direction. *Ayres, Glancy.*
- 410 Program Processes in Radio** U 4  
*A, W. 3 cl.*  
 The program functions in radio communication including the planning, production and direction of programs. *Riley.*
- 420 Symbol Systems and Communication Behavior** U 3  
*Sp. 3 cl.*  
 Study of the nature and forms of symbolic behavior; the human uses of symbols, particularly in communication. *Fotheringham, Knower.*



**440 Anatomy and Physiology of the Ear and Vocal Mechanisms U 5**(677) *A, Sp. 5 cl.**Prereq.: 240.*

A study of the organs and systems of the body related to the processes of speech and hearing. *Stromsta.*

**465 Stage Arts II U 5***A, W. 3 cl., 1 2-hr. lab.*

Basic principles of stage pictorial and architectonic design; history and technique of stage and costume design. *Crepeau.*

**505 Forms of Public Address U G 5**(601) *W. 5 cl.*

The organization, style, and delivery of speeches for special occasions. *Rieke.*

**510 Program Processes in Television U G 5***A, W, Sp. 5 cl.*

Creating, planning, producing and directing of the television program; development of program forms, program sources, programming organization and program evaluation.

**Tests and Measurements in Speech Education***(See Psychol. 512.)***515 Organizational Communication U G 3***Sp. 3 cl.*

A study of the communicator and communication systems in organizations with emphasis on theory, relationships, and objectives. *Brooks.*

**520 Communication and Social Behavior U G 3***Sp. 3 cl.*

Communication processes underlying social and cultural pressures on the individual; communication analysis of behavior; techniques of inquiry into forms of symbolic influence. *Monaghan.*

**525 Broadcasting and Written Messages U G 4***A, Sp. 3 cl.*

*Not open to students with credit for (654) and (764).*

Analysis of program types in relation to writing effectiveness; communication significance of content and style elements in television and radio. *Riley.*

**540 Introduction to Audiology U G 5**(682) *A, Sp. 5 cl.**Prereq.: 240, concur. 440.*

The study of hearing, both normal and abnormal, with information on the nature, causes, identification, and rehabilitative treatment of persons with hearing disorders. *Brannon.*

**550 Introduction to Speech Pathology U G 3**(694) *A, Sp. 3 cl.**Prereq.: 240, 245, and 250.*

A study of disorders of speech; information on prevalence, causes, types, and effects. *Moser.*

**The Teaching of Speech in Secondary Schools***(See Educ. 556)***565 Children's Theatre: Production and Direction U G 5**(743) *A, W. 5 cl.**Prereq.: 270.*

Selection, production and direction of plays for children. *Lewis.*

**611 Advanced Oral Interpretation U G 3***Sp. 3 cl.**Prereq.: 221 or graduate standing.*

A study of programming non-dramatic literature for communication by groups; novel, short story and verse stressed; laboratory experiences in Readers Theatre and Chamber Theatre. *Brooks, Schoen.*

**616 Communication in Decision-Making U G 5***A, Sp. 5 cl.*

*Not open to students with credit for (603) and (610).*

Discussion and debate as critical instruments of social decisions; critical analysis and social influence in committee, conference, negotiation, and debate. *Rieke.*

**621 Theories of Rhetoric U G 5***A, W, Sp. 5 cl.**Prereq.: 213 or graduate standing.*

*Not open to students with credit for (620) and (621).*

Reading and detailed study of the theories of principal rhetoricians from ancient to modern times. *Golden.*

**626 Broadcast Audience Analysis U G 5***A, W, Sp. 4 cl.*

The role of the audience in broadcasting; listener characteristics and preference in relation to program selection and program purposes. *Mall, Monaghan.*

**The Teaching of Dramatics and Oral Interpretation in Secondary Schools***(See Educ. 631)***632 Visual Communication: Theories of Speech Reading U G 3**(683) *W, Sp. 3 cl., 2 1-hr. labs.**Prereq.: 540.*

Study of the major theories and procedures for teaching visual communication.

**The Psychology of the Audience***(See Psychol. 633.)***636 Principles of Audiometry U G 3**(688) *W, Sp. 3 cl.**Prereq.: 540.*

A study of the techniques of hearing assessment in clinical, educational, industrial, and medical settings. *Brannon.*

**640 Speech Pathology: Disorders Associated with Physical Anomalies** U G 5

(695) W. 5 cl.

Prereq.: 440, 550.

Consideration of theories, principles and procedures for appraisal and treatment of deviant voice and articulation that accompanies cleft palate, cerebral palsy, maxillofacial injuries, and other physical disabilities. Moser.

**644 Theories of Language Development of the Deaf** U G 3

(689) A. 3 cl.

Prereq.: 250, Psychol. 570.

Study of the communicative processes of acoustically handicapped individuals: symbolization, meaning, syntax.

**648 The Pre-School Deaf Child** U G 3

(690) Su. 3 cl.

Prereq.: 250, Ed. 611, 650.

Study of the problems of communication of the deaf child. Brannon.

**652 Stuttering: Theories and Therapies** U G 5

(696) Sp. 5 cl.

Prereq.: 550 and 10 cr. hrs. in Psychol.

Theories, principles and procedures for the appraisal and treatment of persons with dysfluencies in speech. Irwin.

**656 Principles and Procedures for Appraisal and Treatment in Speech Pathology** U G 5

(697) W. 5 cl.

Prereq.: 185 and 550.

Principles and procedures in the appraisal and treatment of speech disorders with emphasis on vocal and articulatory deviations not associated with physical disabilities. Irwin.

**Behavioral Aspects of Language Disabilities**

(See Educ. 663)

**The Psychology of Speech**

(See Psychol. 670.)

**671 History of the Theatre** U G 3

(631) A. 3 cl.

Prereq.: Engl. 220 or 262, Engl. 649 recommended.

Greek, Roman, Medieval and Commedia dell'arte Theatre. McDowell.

**672 History of the Theatre** U G 3

(632) W. 3 cl.

Prereq.: Engl. 220 or 262, Engl. 649 recommended.

Renaissance, Elizabethan, and Restoration Theatre. Morrow.

**673 History of the Theatre** U G 3

(633) Sp. 3 cl.

Prereq.: Engl. 220 or 262, Engl. 649 recommended.

Eighteenth, Nineteenth, and Twentieth-Century Continental, English and American Theatre. McDowell.

**693 Individual Studies in Speech** U G 1-5

(700) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Conference, library and laboratory work.

**705 Principles of Rhetorical Criticism** U G 3

W. 3 cl.

Not open to students with credit for (623) and (624).

Principles, functions, and methods of rhetorical criticism as it relates to public address. Golden.

**715 Broadcasting and the Public Interest** U G 3

Sp. 3 cl.

Communication significance of "public interest" concept in broadcasting; effect on program standards, self-regulation, government regulation. Mall.

**725 Creative Television Production and Direction** U G 3

(766) Sp. 2 cl., 1 3-hr. lab.

Repeatable to a maximum of 6 cr. hrs.

Advanced theories of television production and direction; evaluation of program forms; creation and production of experimental programs under broadcast conditions. Lynch.

**735 Hearing Aids and Auditory Training** U G 3

(775) W. 3 cl.

Prereq.: 540, 636.

Operational principles of individual and group amplification systems for those with hearing impairments. Stromata.

**745 Theories of Speech Development of the Deaf** U G 3

(693) W. 3 cl.

Prereq.: 240, 245, 644.

Study of the development of speech under conditions of minimum auditory stimulation and acoustic feedback.

**755 Beginning Practicum in Speech and Hearing** U G 3

(698) A, W, Sp. 2 cl., 7 1-hr. labs.

Repeatable to a maximum of 12 cr. hrs.

a. Speech Pathology

Prereq.: 648.

b. Audiology

Prereq.: 632, 636.

c. Language Disorders in Children

Prereq.: 250, 644.

Supervised practice in appraisal and treatment with emphasis on:

a. Vocal and articulatory disorders.

b. Hearing disabilities.

c. Language disabilities of children.

Moser.

**770 Modern Theatre Styles** U G 3

(651) A. 3 cl.

Prereq.: Engl. 649 or equiv.

Realistic and non-realistic styles in the modern theatre. Crepeau, Ritter.



**780 Advanced Acting Theory U G 3**  
(626) W. 2 2-hr. cl.

Prereq.: (522) or equiv.

A study of the major theories of the art of acting and their application. *Bowen*.

**783 Honors Course U 3-15**

A, W, Sp.

Prereq.: 4th yr. standing, with a grade of A in at least half of his Speech courses and an average of B in the remainder of his courses, and permission of the professor under whose supervision the work is to be completed and the Honors Committee of the College.

Repeatable to a maximum of 15 cr. hrs.

A program of independent study for the student with special aptitudes; individual conferences and reports.

**794 Special Group Studies in Speech U G 3-5**

A, W, Sp.

Prereq.: Permission of instructor.

**801 Aesthetics of Broadcast Communication G 3**  
W. 3 cl.

Aesthetic and creative processes in program evaluation; theories of response to artistic elements of style, content, and treatment. *Lynch*.

**806 Advanced Studies in Television and Radio G 3-5**

A, W.

- a. Censorship in Broadcasting. A. *Lynch*.
- b. International Broadcasting. W. *Lynch*.

**811 Seminar in History and Criticism of Public Address G 3-5**

(820) A, W, Sp. 2 2-hr. cl.

Repeatable.

- a. Classical to Medieval Orators. A. *Golden*.
- b. Eighteenth Century British and Continental Speakers. W. *Rieke*.
- c. Colonial to Revolutionary America. Sp. *Golden*.

**816 Seminar in Rhetorical Theory G 3-5**

A, W, Sp. 2 2-hr. cl.

Repeatable.

- a. Greek Rhetoric. A. *Rieke*.
- b. Roman Rhetoric. W. *Golden*.
- c. Medieval and Renaissance Rhetoric. Sp.

**821 Seminar in Television and Radio G 3-5**

(860) A, W, Sp. 3-4 cl.

Repeatable.

- a. Networks and American Television. A. *Lynch*.
- b. The Role of the Station Manager. A. *Monaghan*.
- c. The Documentary in Broadcasting. W. *Riley*.
- d. The Federal Communications Commission. W. *Mall*.
- e. The Impact of Labor Unions in Television. Sp. *Lynch*.
- f. Religion and American Broadcasting. Sp. *Mall*.

**826 Seminars in Communication Behavior G 3-5**

(881) A, W, Sp. 2 2-hr. cl.

Repeatable.

- a. Experimental Studies in Communications. A. *Knower*.
- b. Communications Theories and Models. W. *Knower*.
- c. The Creative Personality. Sp. *Monaghan*.

**832 Experimental Phonetics G 5**

(778) Sp. 3 cl., 2 2-hr. labs.

Prereq.: 245, 856 or permission of instructor.

A study of experimental investigations of acoustic, physiological and psychological aspects of speech and related laboratory experiments. *Black*.

**836 Disorders of Communication Associated with Neuropathologies G 5**

Su. 5 cl.

Study of the nature, diagnosis, prognosis, and treatment of speech manifestation in dysarthria and aphasia.

**840 Curricular and Instructional Adjustment for the Deaf Child G 3**

(781) Sp. 3 cl.

Prereq.: 648, Ed. 735.

Laboratory projects directed toward the development of language, silent reading, lip-reading among deaf children.

**844 Advanced Practicum in Speech and Hearing G 3-15**

(785) A, W, Sp. 1 cl., 3 clinical hrs. for each hour of credit per week.

Each practicum 1-2 hrs. per qtr., repeatable to a maximum of 6 cr. hrs.

Include letter with number on schedule card.

- a. Speech Pathology  
Prereq.: 755 a. and when appropriate 640, 836 and 844 c. or permission of instructor.
- b. Audiology  
Prereq.: 755 b, 632.
- c. Language  
Prereq.: 250, 755a.

a. Speech disorders associated with structural disorders, or with neuropathologies, stuttering, articulation, voice and foreign accent. b. Aural rehabilitation, diagnostic audiology, speechreading, and auditory training of the acoustically impaired individual. c. Language disorders in children, including aphasia and deafness.

Each practicum for any specific disorder must be preceded by or taken concurrently with didactic study of evaluative and therapeutic procedures appropriate to the disorder. *Moser*.

**848 Interdisciplinary Functioning in Disorders of Oral Communication G 3**

(877) W. 4 cl.

Prereq.: 640, 844, 836.

The diagnosis and treatment of profound speech and hearing disorders and the joint rehabilitation treatment accorded pathological ear and vocal mechanisms by ancillary disciplines. *Schlanger*.

**852 Advanced Study of American Phonetics G 3-5**

(617) Su. 3 cl., 2 2-hr. labs.

Prereq.: 245.

Comparative phonetics, dialects and other variations of American Speech; lecture, field work, and spectrography.

**856 Speech and Hearing G 5**(678) *W. 5 cl.**Prereq.: 540 or equiv. and Physics 501.*

Theoretical concepts and physiological and psychophysical data relative to hearing with particular reference to the preception of speech. *Black.*

**865 Advanced Theatre Direction and Production G 5**(745) *Sp. 3 2-hr. cl.**Prereq.: (646).*

Principles and techniques of direction and integration of technical elements in the educational theatre. *Bowen.*

**870 Bibliography in Theatre G 3***A. 2 cl.*

A course for the advanced graduate student in the methods and tools of research in all areas of theatre. *Morrow.*

**875 Theatrical Criticism G 5**(735) *Sp. 5 cl.**Prereq. or concur.: one of the following Engl. 520, or 624, or 649.*

Critical theories from the Greek to the modern period with particular reference to the influence of the theorists, church, state, and press. *McDowell.*

**880 Advanced Studies in Theatre G 3-5***A, W, Sp.**Repeatable.*

- An Aesthetic for the Theatre. *A. Crepeau.*
- Religious Drama. *A. Bowen.*
- Children's Theatre: Production, Directing, and Playwriting. *W. Lewis.*
- Touring Theatre—International University Theatre. *W. Crepeau.*
- Research and Foundation Support in Theatre. *Sp. Bowen.*
- The American Musical Theatre. *Sp. Crepeau.*

**890 Areas and Techniques of Research in Speech G 3**(705) *A. 3 cl.**Prereq.: 25 cr. hrs. in Speech.*

A review and critical commentary on typical methods of research in each of the principal areas of graduate research in speech. Research reports. *Knower.*

**894 Special Group Studies in Speech G 3-5***A, W, Sp.**Prereq.: Permission of instructor.***Seminars in Education***(See Educ. 895.09)***899 Interdepartmental Seminar***(See Interdepartmental Seminars)***940 Advanced Studies in Speech and Hearing Science G 3-5***A, W, Sp.*

- The Design of Experiments in Speech and Hearing. *A. Black.*
- Communication Problems in Mental Retardation. *A. Schlanger.*
- Instrumentation for Speech and Hearing. *W. Stromata.*
- Clinical Approach to Persons with Speech and Vocal Disorders. *Sp. Irwin.*
- Advanced Audiometry. *Sp. Brannon.*

**950 Seminar in Speech and Hearing Science G 1-5**

(880)

*A, W, Sp.**Repeatable.*

- Basic Areas of Speech Pathology and Audiology: Acoustic Spectrography. *A. Black.*
- Language Disorders: Language Disorders in Children. *A. Brannon.*
- Speech Pathology: Management and Supervision. *A. Goff.*
- Audiology: Pediatric Audiometry and Central Auditory Dysfunction. *W. Brannon.*
- Speech Pathology: Supervision and Direction of Programs in Speech Pathology. *W. Irwin.*
- Speech Pathology: Therapy Procedures with Mentally Retarded Children. *Sp. Schlanger.*

**970 Seminar in Theatre G 2-5**

(840)

*A, W, Sp.**Repeatable.*

- Late 19th Century and Early 20th Century European Theatre. *A. McDowell.*
- Development of Dramatic Art: Classic to Renaissance. *A. Ritter.*
- Trends in Theatre Decentralization. *W. Bowen.*
- Development of Dramatic Art: 17th and 18th Century. *W. Ritter.*
- Modern Critical Theories of the Drama. *Sp. Morrow.*
- Development of Dramatic Art: 19th and 20th Century. *Sp. Ritter.*

**999 Research in Speech G Arr.**(950) *A, W, Sp.*

Research for thesis or dissertation purposes only.



## Surgery

Office: University Hospital, 410 West 10th Avenue.

PROFESSORS †ROBERT ZOLLINGER (Chairman), †CLATWORTHY, †CURTISS, †HAMELBERG, †HUNT, †HARDYMON, †JAMES, †KLASSEN, †SIRAK, †WILSON, †WINTER, and RICHARD ZOLLINGER; ASSOCIATE PROFESSORS †ANDREWS, †BOLES, †COLLINS, †GARVIN, †HEYDINGER, †JESSEPH, †LENAHAN, †MARABLE, †MEAGHER, †MECKSTROTH, †PACE, †PATTON, †SAYERS, †BLANCA SMITH, J. TAYLOR, †VASKO, †WILTBERGER, and †ENDAHL; ASSISTANT PROFESSORS †ARNOLD, †BABER, †BARNES, †BERGGREN, †BINGHAM, †BONTA, †BUCKLES, †COLEMAN, †DAWSON, †DURAN, †FURISTE, †FUSCO, †GAUTHIER, †GUILFOIL, †HAMILTON, †HARDING, †IRETON, †KEITH, †KILMAN, †KINSEY, †KIRK, †KNISELY, †LACEY, †LEWIS, †MILLER, †MORSE, †NICK, †PUPPEL, †RANDALL, †RAUCH, †SECREST, F. SMITH, J. SMITH, P. SMITH, †STONER, †TETERICK, †THOMFORD, †WELCH, and †ZOX; INSTRUCTOR †DORFMAN.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the departments of Med., Ob. and Gyn., Ophthalmol., Phys. Med., Ped., Prev. Med., Psychiatry, and Radiol.]

[Instruction in the evaluation of the surgical aspect of patient care, as it relates to total care, by lectures, demonstrations and bedside rounds.]

### 715 Clinical Surgery P 6, 12

July, Sept., Nov., Jan., Mar., and May.

Prereq.: Med. 3rd yr. standing.

The student serves as clinical clerk both in inpatient and outpatient departments on the General Surgical Services. He is instructed in total patient care.

### 736 Clinical Surgery P 6, 12

July, Sept., Nov., Jan., and Mar.

Prereq.: Med. 4th yr. standing.

Total in- and out-patient management of diseases of surgical specialties; anesthesia, emergency room, orthopedics, neurosurgery, thoracic surgery, plastic surgery, and urology.

### 760 Research in Orthopedic Surgery P 18

3 months offered July, Nov., Mar.

Prereq.: 715.

Investigation in musculo-skeletal problems; laboratory investigation of locomotor system, including mineral metabolism, surgical implantations, cartilage and bone metabolism and related fields. *Curtiss and Staff.*

### 793 Individual Studies in Surgery

1, 2, 3, or 4 months.

Su, A, W, Sp.

P

G 3-5

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 hrs. graduate credit.

.01 Anesthesia research. 4 mos., offered July, October. P 24

.02 General surgery. 1, 2 mos., offered all mos., except June. P 6, 12

.03 Neurosurgery. 2 mos., offered all mos. P 12

.04 Orthopedics Basic Clinical 1 mo., 3rd yr. standing, offered Sept., Nov., Jan., and March. P 6  
1 mo., 4th yr. standing, offered Sept., Jan., and May.

.05 Pediatric surgery. 2 mos., offered all mos. P 12

.06 Urology. 2, 3, or 4 mos., offered all mos. P 12, 18, 24

.07 Orthopedics—Advanced Clinical 2 mos., 3rd yr. standing, offered Sept., Nov., Jan., and March. P 6, 12

2 mos., 4th yr. standing, offered July, Nov., and March.

.08 Plastic and Reconstructive Surgery. 1, 2, 3 or 4 mos., offered all mos. P 6, 12, 18, 24

## 794 Group Studies in Surgery

1, 2, 3 months.

Prereq.: 715, 736.

.01 Anesthesia. 1 mo., offered all mos. P 6

.02 Anesthesia, Pharmacology. 1 mo., offered Jan. P 6

.03 Anesthesia autonomic agents. 1 mo., offered March. P 6

.04 Emergency room. 1 mo., offered all mos., except June. P 6

.05 Neurosurgery. 1 mo., offered all mos., except June. P 6

.06 Orthopedic. 1 mo., offered all mos., except June. P 6

.07 Pediatric surgery. 1 mo., offered all mos., except June. P 6

.08 Pediatric surgery, preceptorship. 2 mos., offered all mos., except June. P 12

.09 Plastic Surgery. 1, 2 or 3 mos., offered all mos., except July and October. P 6, 12, 18

.10 Surgical laboratory. 1, 2 or 3 mos., offered all mos. P 6, 12, 18

.11 Thoracic surgery. 1 mo., offered all mos., except June. P 6

.12 Thoracic surgery-cardiovascular. 1 mo., offered all mos., except June. P 6

.13 Urology. 1 mo., offered all mos., except June. P 6

## 798 Internship in Surgery P 18

Su, A, W, Sp.

Prereq.: Appointment as Intern, University Hospital.

Repeatable to a maximum of 72 cr. hrs.

Broad exposure to surgical principles and practices one-half general surgery, one-half surgical specialties; experience in operating rooms, wards, and emergency room; rounds, conferences.

## 799 Residency in Surgery P 18

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 360 cr. hrs.

Rotation through general surgery and surgical sub-specialties; rounds, conferences.

## 850 Seminar in Surgery G 3 or 5

(900) Su, A, W, Sp.

Group and individual discussions of current surgical problems and their management; discussions of basic and applied topics. *Zollinger and Staff.*

## 999 Research in Surgery G Arr.

(950) Su, A, W, Sp.

Research for thesis purposes only.

## Veterinary Anatomy

Office: 102-A Sisson Hall, 1900 Coffey Road.

PROFESSORS †VENZKE (Chairman), and †DIESEM;  
ASSOCIATE PROFESSOR ANDRES; INSTRUCTOR  
LATSHAW.

### 100 Veterinary Anatomy U 5

(451) A. 5 cl.

Prereq.: Zool. 101 or equiv.

Not open to Vet. Med. Students.

Lectures and demonstration on specimens from the various anatomical systems of domestic animals. Staff.

### 410 Anatomy of Domestic Animals P 7

(610) A. 4 cl., 8 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing.

The morphology of the cow, sheep, and goat. Diesem, Venzke.

### 411 Anatomy of Domestic Animals P 7

(611) W. 4 cl., 8 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing and 410.

The morphology of the horse, pig, and fowl. Diesem, Venzke.

### 420 Veterinary Embryology P 4

(612) A. 3 cl., 4 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing.

The developmental anatomy of the chick, pig, cat, and dog. Venzke, Andres, Latshaw.

### 430 Veterinary Histology P 4

(616) W. 3 cl., 4 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing.

The microscopic structure of the cell and fundamental tissues. Andres, Latshaw.

### 431 Veterinary Histology P 4

(617) Sp. 3 cl., 4 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing and 430.

The microscopic structure of organs. Andres, Venzke, Latshaw.

### 510 Surgical Anatomy P 5

(620) Sp. 2 cl., 6 lab. hrs.

Prereq.: Vet. Med. 2nd yr. standing.

A thorough dissection of the dog and lecture-demonstrations on areas of special surgical significance in other animals. Diesem, Venzke.

### 601 Veterinary Endocrinology P G 3-5

(755) Su, A, W, Sp. 3 cl., 4 lab. hrs.

Prereq.: Vet. Physiol. 531 or equiv.

Special consideration is given to the correlation of the endocrine control of cellular metabolism. Venzke.

### 693 Individual Studies P G 2-5

(701) Su, A, W, Sp. 1 cl., 6-15 lab. hrs.

Prereq.: 420, 431.

Training in laboratory investigation of special problems. Venzke, Diesem, Andres.

### 700 The Nervous System of Domestic Animals P G 3

W. 2 cl., 2 lab. hrs.

Prereq.: 410, 411, 510. Anat. 317 or equiv.

Gross and microscopic anatomy of the nervous system of domestic mammals and fowl; detailed topography of the nuclei and tracts of the central nervous system; functional correlation. Diesem, Andres.

### 801 Anatomical Technics P G 2-5

(751) Su, A, W. 1 cl., 6-15 lab. hrs.

Prereq.: 411, 431 or equiv. and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Theory and practice of macroscopic and microscopic methods, including specimen preparation for dissection, fixing, imbedding, sectioning, mounting, and staining of animal tissue. Diesem, Venzke, Andres.

### 810 Anatomy of Laboratory Animals G 3-5

Sp. 3-5 cl., 2 hrs. each.

Prereq.: 420, 510; Vet. Physiol. 411; Vet. Path. 512 or equiv. and permission of instructor. Open by special permission to students who have not specialized in Vet. Med.

Anatomy of laboratory animals including primates, rodents and avian species; emphasis on application of anatomy to surgical procedures and research techniques. Diesem.

### 999 Research in Veterinary Anatomy G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Clinics

Office: 1009 Veterinary Hospital, 2578 Kenny Road.  
†THARP (Director), and RUDY (Associate Director).

### 510 Veterinary Clinics P 3

(721) A, W, Sp. 7 2-hr. lab.

(722) Prereq.: Vet. Med. 3rd yr. standing.

(723) Repeatable to a maximum of 9 cr. hrs.

Training in clinical procedures. Clinical Staff.

### 511 Veterinary Clinics P 6

(724) Su. 7 24-hr. lab. duty, 1 cl.

Vet. Med. 4th yr. standing and 510.

Intense training in clinical work for one term.

### 512 Veterinary Clinics P 15

(725) A, W, Sp. 7 24-hr. lab. duty, 1 cl.

Prereq.: Vet. Med. 4th yr. standing and 511; 2 qtrs. required.

Training in clinical procedures, case work, and hospital management. Clinical Staff.



## Veterinary Medicine

Office: 1009 Veterinary Hospital, 2578 Kenny Road.

PROFESSORS †THARP (Chairman), †DONOVAN, KRILL (*Emeritus*), and †VENZKE; ASSOCIATE PROFESSORS DONHAM, †LOEB, WEARLY, and WHITEUS; ASSISTANT PROFESSORS CARSON, GARDNER, †GISLER, HEIDER, MARTIN, MARTIN, †MURDICK, RAINIER, RAY, and WYMAN; INSTRUCTOR BIBB.

### 510 Physical Diagnosis P 2

(620) Sp. 1 cl., 1 2-hr. lab.

Prereq.: Vet. Med. 2nd yr. standing.

The principles, procedures, techniques, and instrumentation used in conducting a thorough physical examination of all the domestic animals. *Wearly, Donovan, Martin, Rainier.*

### 520 Diseases of Small Animals P 3

(730) A. 3 cl.

Prereq.: 510.

Principles of small animal medicine including infectious, parasitic and nutritional diseases of the canine, feline and avian species. *Donovan, Martin, Wyman.*

### 521 Diseases of Small Animals P 3

(731) W. 3 cl.

Prereq.: 520.

Principles of small animal medicine including the skin, endocrine, digestive, and uro-genital systems of the canine, feline, and avian species. *Donovan, Martin, Wyman.*

### 522 Diseases of Small Animals P 3

(732) Sp. 3 cl.

Prereq.: 521.

Principles of small animal medicine including the cardiovascular, respiratory, musculo-skeletal, and nervous systems of the canine, feline, and avian species. *Donovan, Martin, Wyman.*

### 530 Diseases of Large Animals P 4

(735) A. 4 cl.

Prereq.: 510.

Principles of large animal medicine including management, nutrition and nutritional deficiencies, infections, parasitic, and metabolic diseases of ovine, caprine and equine species. *Wearly, Rainier, Donham, Gardner.*

### 531 Diseases of Large Animals P 3

(736) W. 4 cl.

Prereq.: 530, 532.

Principles of large animal medicine including management, toxicology, nutrition, and nutritional deficiencies, infectious and parasitic diseases of the porcine species. *Wearly, Rainier.*

### 532 Diseases of Large Animals P 4

(740) A. 4 cl.

Prereq.: 510.

Principles of large animal medicine including management, toxicology, nutrition and nutritional deficiencies, infectious, parasitic and metabolic diseases of the bovine species. *Wearly, Rainier, Murdick, Donham.*

### 540 Obstetrics and Genital Diseases P 5

(738) Sp. 5 cl.

Prereq.: Vet. Med. 3rd yr. standing.

Lectures and demonstrations in obstetrics, diseases associated with reproduction and artificial insemination of domestic animals. *Tharp, Murdick.*

### 600 Veterinary Practice P 3

(719) W. 4 cl.

(720) Prereq.: Vet. Med. 4th yr. standing.

To acquaint the student with veterinary laws, business practices, opportunities and responsibilities that will be thrust upon him at graduation. *Whiteus.*

### 610 Ophthalmology P G 3

(750) A, W, Sp.

Prereq.: 510, 522, Vet. Physiol. and Pharmacol. 530.

A study of the eye of domestic animals with emphasis upon diagnosis of the eye and the relation of this organ to general diseases. *Donovan, Wyman.*

### 620 Laboratory Animal Medicine P G 5

A. 3 cl., 3 2-hr. lab.

Prereq.: D. V. M. or permission of instructor.

A study of the diseases of laboratory animals with emphasis on colony management, diagnosis and treatment. *Gisler.*

### 621 Laboratory Animal Medicine P G 5

W. 3 cl. 3 2-hr. lab.

Prereq.: 620, D. V. M. or permission of instructor.

*Gisler.*

### 693 Individual Studies P G 2-8

(701) A, W, Sp, Su.

Prereq.: Vet. Med. 4th yr. standing. Adequate clinical training and permission of instructor.

Special problems in veterinary medicine. *Wearly, Donovan, Tharp, Murdick, Whiteus.*

### 720 Advanced Internal Medicine P G 3-5

A. 3 cl., 6 lab. hrs. (optional).

Prereq.: 522, 531 or equiv. and permission of instructor.

Special consideration is given to diseases of the various organ systems, and to their pathologic physiology, prophylaxis and therapy without respect to species. *Donovan, Murdick.*

### 721 Advanced Internal Medicine P G 3-5

W. 3 cl., 6 lab. hrs. (optional).

Prereq.: 522, 531 or equiv. and permission of instructor.

Special consideration is given to diseases of the various organ systems, and to their pathologic physiology, prophylaxis and therapy without respect to species. *Donovan, Murdick.*

### 999 Research in Veterinary Medicine G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Parasitology

Office: 304 Sisson Hall, 1900 Coffey Road.

PROFESSOR †KOUTZ (Chairman); ASSOCIATE PROFESSOR †GROVES; ASSISTANT PROFESSOR SCOT-HORN.

### 410 Veterinary Parasitology P 4

(640) Sp. 4 cl., 1 2-hr. lab.

Prereq.: Vet. Med. 1st yr. standing.

Lectures and demonstrations on the classification, structure, reproduction, habitat, life history, control and treatment of the nematode, cestode and trematode parasites found in domestic animals. Koutz, Groves.

### 411 Veterinary Parasitology P 3

(642) A. 3 cl., 1 2-hr. lab.

Prereq.: Vet. Med. 2nd yr. standing.

Lectures and demonstrations on the classification, structure, reproduction, habitat, life history, control and treatment of the arthropods found in domestic animals. Koutz, Groves.

### 412 Veterinary Parasitology P 3

(646) W. 3 cl., 1 2-hr. lab.

Prereq.: Vet. Med. 2nd yr. standing.

Lecture and demonstrations on the structure, reproduction, habitat, life history, control and treatment of the protozoal parasites found in domestic animals. Koutz, Groves.

### 610 Advanced Veterinary Parasitology P G 2-5

(623) Su, A, W, Sp.

Prereq.: 410, 411, 412 or equiv. and permission of chairman.

Repeatable to a maximum of 15 cr. hrs.

A review of literature, detailed study of classification, morphology, life histories and economic importance of animal parasites. Koutz, Groves.

### 693 Individual Studies P G 2-8

(701) Su, A, W, Sp.

Prereq.: 410, 411, 412, Vet. Clinics 510, or equiv., and permission of chairman.

Laboratory and library investigations of special problems concerning animal parasitic diseases. Koutz, Groves.

### 850 Seminary in Veterinary Parasitology G 1

(827) A, W, Sp.

Repeatable to a maximum of 16 cr. hrs.

### 999 Research in Veterinary Parasitology G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Pathology

Office: 207 Veterinary Pathology, 1925 Coffey Road.

PROFESSORS †COLE (Chairman), †FARRELL, †GRIESEMER, †KOESTNER, and †MARSH; ASSISTANT PROFESSORS †CAPEN, †FOWLER, †KASZA, †LOEB, and †McKISSICK; INSTRUCTOR LONG.

### 510 General Pathology P 6

(621) A. 4 cl., 4 lab. hrs.

Prereq.: Vet. Med. 2nd yr. standing.

The principles of pathology, including etiology, reaction to injury, course and termination of disease. Emphasis on functional, chemical and morphological alterations in disease. Koestner, Capen.

### 511 Systemic Pathology P 6

(622) W. 4 cl., 4 lab. hrs.

Prereq.: 510.

Diseases of the nervous, endocrine, cardiovascular, hemic and lymphatic, digestive, respiratory, urinary, genital musculo-skeletal and integumentary systems, and organs of special senses. Griesemer, Koestner, McKissick.

### 512 Veterinary Clinical and Systemic Pathology P 6

(733) Sp. 4 cl., 4 lab. hrs.

Prereq.: 511.

Correlation of functional, morphological and chemical abnormalities in diseases of domestic and laboratory animals caused by toxic and radioactive materials, nutritional and metabolic disturbances, and infectious agents. Griesemer, Loeb, Farrell.

### 610 Avian Pathology P 3

(732) W. 3 cl.

Prereq.: 512.

Diseases of chickens, turkeys, caged birds, game birds, and water fowl. Marsh.

### 625 Pathology Technic P G 2-10

(610) A, W, Sp, Su.

Prereq.: 512 or equiv. and permission of instructor.

Theory and application of technical methods employed in modern animal disease research. Coordinated approach to animal disease investigation including functional-, Chemical-, gross-, and histopathology. Farrell, Griesemer, Cole.

### 693 Individual Studies P G 1-10

(701) Su, A, W, Sp.

Prereq.: 512 or equiv. and permission of instructor.

Laboratory, library, conference, and reports concerning animal disease problems. Cole, Farrell, Griesemer, Koestner.

### 710 Advanced Systemic Pathology P G 2-10

(776) Su, A, W, Sp.

Prereq.: 512, 625, 693 or equiv., and permission of instructor.

An advanced study of animal diseases as they affect all organ systems of the body. Farrell, Koestner, Griesemer.



# 715 Veterinary Surgical Pathology P G 2-10

(778) Sp.

Prereq.: 710 and permission of instructor.

Biopsy methods and diagnosis. Surgical specimens are studied, and emphasis is placed upon the correlation of lesions and functional pathology. *Koestner*.

# 720 Animal Oncology P G 2-10

(786) A.

Prereq.: 710 and permission of instructor.

A study of neoplasmas occurring in animals, including identification, epidemiology, experimental production, cell culture, transplantation and biological behavior. *Cole, Griesemer*.

# 850 Seminar in Veterinary Pathology G 1

(807) Su, A, W, Sp.

Repeatable to a maximum of 16 cr. hrs.

# 999 Research in Veterinary Pathology G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only. For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

# 531 Physiology of Domestic Animals P G 5

(611) A. 4 cl., 3 lab. hrs.

Prereq.: 530 and Vet. Med. 2nd yr. standing, or permission of instructor.

Physiology of the cardiovascular and respiratory systems, digestion in the simple stomach and rumen. *Smith, Hamlin, Ray*.

# 532 Physiology of Domestic Animals P G 5

(622) W. 4 cl., 3 lab. hrs.

Prereq.: 531 and Vet. Med. 2nd yr. standing, or permission of instructor.

Physiology of digestion metabolism; renal physiology, reproduction, and endocrinology. *Powers, Ray*.

# 630 Veterinary Pharmacology P G 5

A. 5 cl.

Prereq.: Vet. Med. 2nd yr. standing or permission of instructor.

Pharmaceutical standards and preparations, metrology, posology, prescription writing, basic principles of pharmacodynamics, drugs acting on the neuromuscular systems, skin and mucous membranes and digestive tract of domestic animals. *Redding, Powers, Ray*.

# 632 Veterinary Pharmacology P G 4

W. 4 cl.

Prereq.: 630 or permission of instructor.

Anti-infective drugs. Hormones used as drugs, drugs affecting fluid and electrolyte balance and drugs acting on the cardiovascular system of domestic animals. *Powers, Redding*.

# 693 Individual Studies P G 3-15

(701) Su, A, W, Sp.

Prereq.: 532 and 632 or equiv. and permission of instructor.

Laboratory and library investigations concerning animal physiology and pharmacology problems. *Smith, Redding, Pouden, Powers, Hamlin*.

## Veterinary Physiology and Pharmacology

Office: 351 Sisson Hall, 1900 Coffey Road.

PROFESSORS †SMITH (Chairman), †MARKS, †POUNDEN, and †REDDING; ASSOCIATE PROFESSORS †HAMLIN, and †POWERS; ASSISTANT PROFESSORS †RAY and WRIGHT; INSTRUCTOR GALL.

# 210 Animal Physiology U 5

(516) A. 4 cl., 1 3-hr. lab.

Prereq.: Chem. 102 or 122.

Not open to students with credit for 410 or 411.

Concepts and principles involved in the function of various body systems and principles of growth and aging will be considered. *Ray and Staff*.

# 211 Animal Physiology U 5

(517) W. 4 cl., 1 3-hr. lab.

Prereq.: Chem. 102 or 122.

Not open to students with credit for 532.

Comparative study of physiological concepts and principles involved in reproduction and metabolism in various species of domestic animals. *Smith and Staff*.

# 530 Physiology of Domestic Animals P G 5

(610) Sp. 4 cl., 3 lab. hrs.

Prereq.: Vet. Med. 1st yr. standing or permission of instructor.

Physiology of peripheral nerve, central nervous system, sense organs, blood, lymph, and special fluid systems of the body. *Redding*.

# 780 Antimicrobial and Endocrine Therapy P G 5

Sp. 3 cl., 2 2-hr. lab.

Prereq.: 532, 632, Microbiol. 613, Biochem. 411, 421; or equiv., Vet. Med. 3rd yr. standing or permission of instructor.

A detailed study of the basic principles and clinical application of endocrines and antimicrobial drugs in veterinary medicine. *Powers*.

# 790 Veterinary Physiology P G 3

A. 2 cl., 2 lab. hrs.

Prereq.: 532 or equiv. in advanced mammalian physiol.

Comparative electrocardiography. *Hamlin, Smith*.

# 791 Veterinary Physiology P G 3

W. 2 cl., 2 lab. hrs.

Prereq.: 532 or equiv. in advanced mammalian physiol.

Comparative hemodynamics and cardiovascular sound. *Hamlin, Smith*.

**792 Veterinary Physiology P G 3***Sp. 2 cl., 2 lab. hrs.**Prereq.: 532, 791, or equiv. in advanced mammalian physiol.*

Advanced comparative cardiovascular physiology with emphasis upon circulatory response to stress of various congenital and acquired cardiovascular defects. *Hamlin, Smith.*

**799 Seminar P G 2***A, W, Sp. 1 2-hr. conf. and lect.**Prereq.: permission of instructor.**Repeatable to a maximum of 30 cr. hrs.*

Lectures and conferences on selected topics in veterinary physiology and pharmacology. *Staff.*

**999 Research in Veterinary Physiology and Pharmacology G Arr.***(950) Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Preventive Medicine

*Office: 252 Sisson Hall, 1900 Coffey Road.*

PROFESSORS †HELWIG (*Chairman*), †BOHL, †JONES, and TYZNIK; ASSISTANT PROFESSORS †KREIER and YEARY; INSTRUCTORS BULLER, LINERODE, and ROBINSON; LECTURERS ADAMS, DRAYER, GOLDSTEIN, KRAMER, RUSSELL, and WITTICH.

**200 Basic Animal Hygiene U 3***(452) A. 3 cl.*

Causes of disease and the relationship of these causes to the animal's environment. *Helwig, Jones, Buller, Linerode.*

**201 Applied Animal Hygiene U 3***(459) W. 3 cl.**Prereq.: 200 or equiv.*

Various common diseases responsible for losses to the livestock industry, with emphasis on control. *Helwig, Jones, Buller, Linerode.*

**510 Hygiene and Environmental Sanitation P 3***(620) A. 3 cl.**Prereq.: Vet. Med. 3rd yr. standing.*

A disease prevention study of the environmental factors which have a direct influence on animal and human health. An introduction to epidemiology and biostatistics. *Helwig, Jones, Buller, Linerode.*

**511 Prevention and Control of Communicable Diseases P 3***(745) W. 3 cl.**Prereq.: Vet. Med. 3rd yr. standing or permission of instructor.*

The prevention of animal communicable diseases based on contemporary medical knowledge is correlated with administrative control and public health. *Helwig and Staff.*

**512 Food Hygiene and Public Health P 4***(742) Sp. 3 cl., 2 2-hr. lab.**Prereq.: Vet. Med. 3rd yr. standing or permission of instructor.*

Principles and practices of food sanitation with emphasis on the veterinarian's role in protecting the public food supply. *Staff.*

**610 Applied Preventive Medicine P 15***(740) A, W, Sp. Full time off-campus cl. and lab.*

Intensive practical training: Public Health and Food Hygiene, meat inspection, Federal and State Disease Control Programs, and Herd Disease Management. *Department Staff and Cooperating Governmental Agencies.*

**616 Germfree and Gnotobiotic Animals P G 5***(750) W, Sp. 3 2-hr. cl. and lab.**Prereq.: Advanced standing in biological sciences, Microbiol. 607 or equiv., and permission of instructor.*

The instrumentation of biological research through application of germfree and gnotobiotic animals. *Staff.*

**693 Individual Studies P G 2-5***(701) Su, A, W, Sp.**Prereq.: 510 and permission of instructor.*

Laboratory and library investigations of animal disease problems involving Veterinary Preventive Medicine. *Helwig, Jones.*

**785 Biological Research Techniques P G 3***(780) A, W, Sp. 2 2-hr. cl. and lab.**Prereq.: Advanced standing in biological sciences, Microbiol. 607 or equiv., and permission of instructor.*

The more common laboratory animals used in biological research and testing will be dealt with as they relate to research purposes, design, and application. *Staff.*

**850 Seminar in Veterinary Preventive Medicine G 1***(800) A, W, Sp.**Repeatable to a maximum of 3 cr. hrs.***810 Veterinary Public Health G 3-8***Su, A, W.**Prereq.: 610.*

Laboratory and library investigation of veterinary public health problems. *Helwig, Jones, Russell.*

**999 Research in Veterinary Preventive Medicine G Arr.***(950) Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.



## Veterinary Surgery and Radiology

Office: 1095 Veterinary Hospital, 2578 Kenny Road.  
 PROFESSORS †RUDY (Chairman), GUARD (Emeritus),  
 †JOHNSON, and †ROENIGK; ASSOCIATE PROFESSORS †GABEL and †WILSON; INSTRUCTOR HEATH.

### 510 General Surgery P 5

(623) Sp. 4 cl., 2 2-hr. lab.

Prereq.: Vet. Med. 2nd yr. standing.

Lectures, recitations and demonstrations of surgery.  
 Rudy, Gabel.

### 520 Veterinary Radiology P 3

(791) A. 2 cl., 2-hr. lab.

Prereq.: Vet. Med. 3rd yr. standing.

Presentation of the principles of diagnostic and therapeutic radiology, including nuclear medicine. Laboratory demonstrations include interpretation of radiographs and radiological technique and protection. Roenigk.

### 530 Special Surgery P 6

(732) W. 6 cl.

Prereq.: 510, 520.

Lectures, recitations and demonstrations on the treatment of surgical diseases of all species. Rudy, Wilson.

### 531 Special Surgery P 6

(733) Sp. 6 cl.

Prereq.: 530.

Lectures, recitations and demonstrations on the diagnosis and treatment of surgical diseases of large animals, including horses, cattle, sheep, and swine. Johnson, Gabel, Heath.

### 532 Surgical Operations P 1

(741) A, W, Sp. 1 4-hr. lab.

Prereq.: 531.

Surgical exercises.

### 693 Individual Studies P G 1-5

(701) Su, A, W, Sp.

Prereq.: Vet. Med. 4th yr. standing.

Laboratory and library investigations of diseases requiring advanced surgery and radiology techniques. Staff.

### 999 Research in Veterinary Surgery or Veterinary Radiology G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Welding Engineering

Office: 128 Industrial Engineering Building, 190 West 19th Avenue.

PROFESSORS †MCCAULEY (Chairman), †GREEN, and McMASTER; ASSOCIATE PROFESSORS †FUNK and †JACKSON; INSTRUCTORS; and LECTURERS.

### 240 Forging, Heat Treating, and Welding U 3

(415) A, W, Sp. 3 cl., 3 1-hr. lab.

Not open to students with credit for (418).

Safety glasses must be worn in the laboratory.

Welding fundamentals and applications. Intended for students not having an engineering background. Laboratory work designed to augment classroom discussions and provide basic welding skills.

### 401 Introduction to Welding Engineering U 4

A. 3 cl., 1 3-hr. lab.

Prereq.: 3rd year standing or permission of the instructor.

Safety glasses must be worn in the laboratory.

An introduction to welding engineering for undergraduate students to familiarize them with the broad field of welding engineering and particularly welding processes. Jackson.

### 430 Applied Engineering Analysis U 4

(810) A. 3 cl., 1 3-hr. lab.

Prereq.: Physics 233 and Math. 255.

The analysis of engineering systems by the application of fundamental principles of conservation of matter and energy, and operational techniques. McMaster.

### 488 Welding Engineering Inspection Trip U 2

(640) Sp. One week between the W. and Sp. Qtrs.

Safety glasses are required.

A group visit to various industrial plants. The plants selected are generally grouped in one community. A written report is required.

### 489 Practical Experience in a Welding Organization U 6

(449) A. Ten weeks during the Su. Qtr.

Prereq.: Weld E. 3rd yr. standing.

Experience in an engineering organization and the preparation of an acceptable report on the organization and the work done before beginning the 4th yr.

### 501 Principles of Welding U G 4

(739) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 401, 430, Elec. E. 500.

Safety glasses must be worn in the laboratory.

Theory, equipment, techniques, and control of fusion welding with electric arc, gas, and other processes. Welding codes and specifications. Application of electrodes and processes. Libby.

### 588 Welding Engineering Inspection Trip U 2

(740) Sp. One week between the W. and Sp. Qtrs.

Safety glasses are required.

A group visit to various industrial plants. The plants selected are generally grouped in one community. A written report is required.

**589 Practical Experience in Welding Industry U 6**(649) *A. Ten weeks during the Su. Qtr.**Prereq.: Weld E. 4th yr. standing.*

Experience in an engineering organization and the preparation of an acceptable report on the organization and the work done before beginning 5th yr.

**602 Principles of Resistance Welding U G 4**(702) *W. 3 cl., 1 3-hr. lab.**Prereq.: 430 and Elec. E. 520.**Safety glasses must be worn in the laboratory.*

Theory and operation of resistance welding equipment, power supplies, electronic controls, welding codes and schedules, and process controls. *McMaster.*

**610 Physics of Welding U G 4**(701) *A. 3 cl., 1 3-hr. lab.**Prereq.: Indust. E. 401, Engr. Mech. 521.**Safety glasses must be worn in the laboratory.*

The application of basic principles in the welding processes. *McCauley.*

**611 Theory of Welding U G 5**(741) *W. 4 cl., 1 3-hr. lab.**Prereq.: 501, Chem. 533, Met E. 500.**Safety glasses must be worn in the laboratory.*

The application of basic metallurgical principles in the welding processes. The weldability of metals is studied. Laboratory work involves physical and metallographic examination of welded specimens. *Jackson.*

**612 Application of Welding Engineering U G 4**(742) *Sp. 3 cl., 1 3-hr. lab.**Prereq.: 611.**Safety glasses must be worn in the laboratory.*

The principles by which manufacturing procedures for materials may be developed. An analysis of processing methods; material, physical and mechanical properties, inspection, performance and service testing. *McCauley.*

**630 Analysis of Continuous Systems U G 3***W. 3 cl.**Prereq.: 430 or permission of the instructor.*

An energy analysis of analogous one-dimensional linear distributed systems with applications to welding process and control systems. *McMaster.*

**631 Nondestructive Testing U G 4**(703) *A. 3 cl., 1 3-hr. lab.**Prereq.: Elec. E. 540, Math 254.**Safety glasses must be worn in the laboratory.*

Principles, equipment, techniques, and interpretation of nondestructive tests with X-rays, radioisotopes, magnetic fields, penetrants, ultrasonics, eddy currents, and other probing media. *McMaster.*

**640 Welding Science and Its Application U G 3**(646) *W. 3 cl.**Prereq.: Engr. 4th yr. standing and Engr. Mech. 420.*

A study of the engineering fundamentals of welding. Design, materials, and processes are considered as related to the welding field. *Green.*

**680 Continuous Systems Laboratory U G 1***W. 1 3-hr. lab.**Concur.: 630.*

Laboratory exercises in measurement of transients in continuously-distributed linear engineering systems (particularly on advanced welding equipment), and analog computer solutions where feasible.

**704 Theory of High Density Welding Processes U G 3***A. 3 cl.**Prereq.: 501, Physics 551 or 743 or equiv. or permission of the instructor.*

Theory of physical and thermal processes in high-pressure arc, plasma, electron beam, laser and other high-energy-density welding processes. *McMaster.*

**705 Principles of Welding Process Control Systems U G 3***Sp. 3 cl.**Prereq.: 430, 501, 602 and Elec. E. 650 or permission of the instructor.*

Principles of continuously-variable and digital control systems for manual, mechanized, automatic, and feedback operation of arc, resistance, and advanced welding processes. *McMaster.*

**720 Welding Design U G 4**(743) *A. 3 cl., 1 3-hr. lab.**Prereq.: Civil E. 531.*

The analysis and design of statically determinate and indeterminate members and structures. A study of welding procedures for shop fabrication and field erection. *Green.*

**721 Welding Design U G 4**(744) *W. 3 cl., 1 3-hr. lab.**Prereq.: 612, 720 and Mech. E. 550.*

The analysis and design of machine elements and frames to a given set of shop conditions and facilities. Emphasis is placed on cost factor considerations. *Green.*

**722 Welding Design U G 4**(745) *Sp. 3 cl., 1 3-hr. lab.**Prereq.: 602 and 721.*

The design of resistance welded products. A selection of process and equipment and a study of tooling used in high production work. *Green.*

**755 Welding Process Control Laboratory U G 1***Sp. 1 3-hr. lab.**Concur.: 705.*

Laboratory experiments in basic instrumentation and control systems for welding processes such as arc, resistance, electron-beam and others.

**784 Special Problems in Welding Engineering U 2-15**(748) *A, W, Sp.**Prereq.: 2nd yr. Prof. Div. standing and permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Special studies not offered in the fixed curriculum in the areas related to courses 501, 602, 610, 611, 612, and 631. This work may be taken in more than one area.



**799 Thesis U 2-15**

(748) A, W, Sp.

Prereq.: 2nd yr. Prof. Div. standing and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Undergraduate research providing an opportunity to publish a report in appropriate technical publications.

**884 Advanced Problems in Welding G 2-6 Engineering**

(841) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 24 cr. hrs.

Special studies not offered in the fixed curriculum. Work may be taken under one or more of the special topics in the field including theory of welding processes and their physical mechanics, weldability of materials, advanced studies in welding design, theory and methodology of non-destructive testing, and fundamental application of welding processes to industrial technology.

**999 Research in Welding G Arr. Engineering**

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Zoology

Office: 101 Botany & Zoology Building, 1735 Neil Avenue. PROFESSORS †WHARTON (Chairman), †DAMBACH, †GRIFFING, †HARVEY, †HAUB, KOSTIR (Emeritus), LANGLOIS (Emeritus), D. F. MILLER (Emeritus), J. A. MILLER (Emeritus), †J. N. MILLER, †MYSER, †PETERLE, †PRICE, †PUTNAM, and †TIDD; ASSOCIATE PROFESSORS †BRITT, †CRITES, †GILTZ, †GOOD, †HOUSE, †HUBSCHMAN, †JOHNSON, †PADDOCK, †PLAINE, †REESE, †STANSBERRY; ASSISTANT PROFESSORS BOOKHOUT, †A. P. BROCKWAY, †B. F. BROCKWAY, †BYERS, †P. COLINVAUX, KESSLER, LIN, MENEFEY, †MOMOT, †PARRISH, and SKAVARIL; LECTURER †TRAUTMAN.

**101 General Zoology U 5**

(404) A, W, Sp. 2 cl., 3 1-hr. lab.

Prereq.: Biol. 102.

Not open to students with credit for 401 or 402.

A study of the variety of animals with emphasis on organ systems and their functions, the interrelationships with each other, space and time. Haub and Assistants.

**Introduction to Ecology**

(See Biol. 410.)

**211 Invertebrate Zoology U 5**

(658) W. 3 cl., 2 2-hr. labs.

Prereq.: 101 or equiv.

Not open to students with credit for 402.

A survey of the invertebrates with emphasis on morphology and relationships of representative types. Crites.

**220 Ornithology U 5**

(508) Sp. 2 cl., 1 2-hr. lab.

Prereq.: 101 or equiv. and 10 additional cr. hrs. in Biol. Sc.

A study of the general biology and classification of birds, with emphasis on field identification of local species. Field trip each Saturday. Reese.

**500 Basic Concepts and Recent Advances in Zoology U G 5**

(657) W. 3 2-hr. cl.

Prereq.: High school teacher status and 15 cr. hrs. natural sc. at the 200 level.

Animal functions and genetic and environmental interrelationships in time and space as illustrated by selected animal types. Tidd.

**610 Animal Parasites U G 5**

W, Sp. 2 cl., 3 2-hr. labs.

Prereq.: 101 or equiv.

The general principles of parasitology, the morphology, life history and classification of parasites, and their host relationships. Recommended for students preparing for medical or zoological work. J. N. Miller.

**611\* Animal Parasitology U G 4**

(631) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

A course emphasizing the parasites infesting freshwater vertebrates, including field and laboratory experiences, host examination, and techniques dealing with staining, fixing, and mounting of specimens. Staff.

**612 Invertebrate Zoology U G 4**

(633) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

The collection and identification of invertebrate animals, development of methods of classification and use of keys. Staff.

**620 Advanced Zoology of Vertebrates U G 5**

A, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 101 or equiv.

A study of the various vertebrate groups, emphasizing their origin, phylogeny, classification, life histories, habits, distribution and economic importance. Price.

**621 Ichthyology U G 4**

(624) Su. (1st term.) Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

Study of the distribution and classification of fishes, which includes methods of identification, collection, and preservation. Staff.

**622\* Herpetology U G 4**

(656) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

Local species of reptiles and amphibians, their habits, life histories, ecology, and classification. Britt.

**623 Biology of Birds U G 3**

(634) W. 2 cl., 1 2-hr. lab.

Prereq.: 101 or equiv.

The aspects of anatomy, physiology, taxonomy, and behavior which are pertinent to the study of birds. Putnam.

**624 Advanced Ornithology U G 4**

(654) *Su. (1st term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.*

*Prereq.: 101 or equiv.*

Topics include instinctive behavior in the life of birds, the breeding cycle, social relations, territory, ecology, characteristics of population, and techniques in field study of birds. *Putnam.*

**625 Mammalogy U G 3**

(629) *W. 3 2-hr. cl.*

*Prereq.: 101 or equiv.*

The comparative morphology, taxonomy, life histories, distribution, and importance of the mammals. *Good.*

**630 Comparative Embryology U G 5**

(632) *W. 3 cl., 2 2-hr. labs.*

*Prereq.: 101 or equiv.*

A survey of various modes of embryonic development, illustrated with both invertebrate and vertebrate type material with emphasis on fundamental aspects and processes. *Price.*

**640 Animal Behavior U G 5**

(605) *A. 3 cl., 2 2-hr. labs.*

*Prereq.: 101 or equiv.*

An experimental study of the anatomical basis of animal reactions. *Putnam.*

**650 Principles of Animal Ecology U G 5**

(636) *Sp. 3 cl., 2 2-hr. labs. Saturday field trips.*

*Prereq.: Biol. 410.*

Principles and methods of animal ecology and their application to other closely related biological sciences. *Stansbery.*

**651 Field Zoology U G 4**

(642) *Su. (1st term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.*

*Prereq.: 101 or equiv.*

Field and laboratory identification of aquatic and terrestrial vertebrates and invertebrates of the region, in relation to habitats occupied. Of special interest to biology teachers.

**652 Limnology U G 4**

*Su. (1st term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.*

*Prereq.: 101 or equiv., 10 cr. hrs. in Chem., 10 cr. hrs. in Physics.*

Study of physical, chemical, and biological factors influencing fresh water life. Field and laboratory techniques for determining area, chemical, natural flora, and fauna are emphasized. *Britt.*

**653 Fish Ecology U G 4**

(623) *Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.*

*Prereq.: 621 or equiv.*

Studies of life histories and interspecific relationships of fishes and of the various factors influencing their abundance. *Staff.*

**654 Ecological Physiology of Aquatic Animals U G 4**

(637) *Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.*

*Prereq.: 101 or equiv., and 10 cr. hrs. of Chem., Physics, or Physiol.*

Study of the aquatic habitat includes physical and chemical adjustment, tolerance, and acclimatization to environment of vertebrates and invertebrates. *Staff.*

**660 Management of Fisheries U G 5**

(607) *Sp. 3 cl., 2 2-hr. lab.*

*Prereq.: Biol. 410 or equiv.*

Application of ecological principles to the production of sustained annual crops of fish for recreational and commercial purposes.

**661 Wildlife Conservation U G 5**

(640) *A. 3 cl., 2 2-hr. labs.*

*Prereq.: 101 or equiv.*

An introductory course in the conservation and management of wildlife resources. Particular attention will be given to Ohio problems. *Good.*

**662 Methods and Techniques in Wildlife Management U G 5**

(641) *W. 3 cl., 2 2-hr. labs.*

*Prereq.: 101 or equiv.*

A study of research and management techniques employed in the field of wildlife management. This course is especially designed for majors in wildlife conservation. *Good.*

**693 Individual Studies U G 2-5**

(701) *A, W, Sp.*

*Prereq.: Permission of instructor.*

Individual work in the field of the chosen problem.

a. Animal Behavior.

*Haub, Putnam, Rothenbuhler, B. Brockway and Good.*

b. Animal Ecology.

*Peterle, Good (Aquatic), Britt, Stansbery, Giltz, Colinvaux and Momot.*

c. Embryology and Vertebrate Zoology.

*Price.*

d. Biometry.

*Skavaril, Griffing and Harvey.*

e. Genetics.

*House, Paddock, Plaine, Griffing, Harvey,*

*Rothenbuhler, Skavaril.*

f. Invertebrate Zoology.

*Britt, Crites.*

g. Ornithology.

*Borror, Putnam, Reese and Kessler.*

h. Parasitology.

*Crites, Miller, Tidd, Venard.*

i. Cytology.

*Myser, Paddock, Parriah and Byers.*

j. Teaching of Biology.

*Tidd and Johnson.*

k. Wildlife Management.

*Peterle, Good and Bookhout.*

l. General Limnology.

*Britt, Momot, Colinvaux.*

m. Comparative Physiology.

*Brockway and Shambaugh.*

n. Electron Microscopy.

*Parriah.*

o. Invertebrate Pathology.

*Briggs.*

p. Population Ecology.

q. Systematics. *Borror, Valentine.*

r. Ichthyology. *Momot.*



**694 Special Group Studies U G 2-5**

(701) A, W, Sp.

Prereq.: Permission of instructor.

Group work in the field of the chosen problem (see topics in 693).

**811†\* Advanced Zoology of Invertebrates G 5**

(832) Sp. 3 cl. 2 2-hr. labs. Field trips including a one week optional trip to a marine laboratory.

Prereq.: 211 or equiv. and permission of instructor.

A study of the morphology, physiology, life histories, and classification of the acoelomate pseudocoelomate invertebrates and the annelid worms. *Crites.***812\* Advanced Zoology of Invertebrates G 5**

(833) Sp. 3 cl., 2 2-hr. labs. Field trips including a one week optional trip to a marine laboratory.

Prereq.: 211 or equiv. and permission of instructor.

A study of the morphology, physiology, life histories, and classification of the eucoelomate invertebrates exclusive of annelid worms. *Crites.***841 Bioacoustics G 3**

Sp. 1 cl., 2-hr. lab. and field trip.

Prereq.: Permission of instructor.

A study of the nature and biological significance of animal sounds. *Borror.***851 Population Ecology G 5**

W. 5 cl.

Prereq.: Biol. 410 and 650.

Interactions of animal populations considered from the environmental, physiological and biometrical aspects. *Peterle.***880 Seminar G 2**

(900) A. 1 cl.

Prereq.: Graduate standing.

Required of all graduate majors in the department during the first Autumn Qtr. of registration. *Myser.***881 Seminar G 1**

(900) A, W, Sp.

Repeatable to a maximum of 5 cr. hrs.

Selected topics to be announced.

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**

Sp.

(See under Interdepartmental Seminars)

**897 Interdepartmental Seminar in Natural Resources G 1**

A, W, Sp.

(See under Interdepartmental Seminars)

**999 Research in Zoology G Arr.**

(950) A, W, Sp.

Research for thesis and dissertation purposes only.







ANATOMY

Old	New
504	200
505	201
513	202
604	604
607	607
608	608
613	613
615	615
616	616
618	618
619	619
621	621
622	622
624	624
625	625
626	642
626A	643
627	627
637	637
638	638
639	639
640	640
641	641
701	693
705	705
711	811
727	727
728	728
807	793
815	815
817	817
818	818
821	821
822	822
824	824
825	825
826	826
830	850
840-new	840
950	999
617-new	617

503	210
607	510
612	410
613	610
630	412
632	460
633	401
634	414
635	415
636	450
637	452
639	570
659	416
660	430
670	662
674	664
700	693
710	640
730	454
731	456
820	803
896	896
899	899
950	999

ARCHITECTURE

Old	New
393-new	393
411	111
412	112
413	113
511	211
512	212
513	213
521	521
522	522
523	523
604	601
605	602
606	603
611	511
612	512
613	513
621	621
622	622
623	623
631	688
661	661
662	662
663	663
693-new	693
707	700
711	611
712	612
713	613
714	711
715	712
716	713
754	751
755	752
781	721
782	722
783	723
801	801
802	802
803	803
811	811
812	812
871	871
871A	871.01
871B	871.02
871C	871.03
871D	871.04
871E	871.05
871F	871.06
871G	871.07
871H	871.08

ANIMAL SCIENCE

Old	New
100-new	100
401	200
407	250
501	541
502	542
503	543
505	544
506	500
509	450
510	451
515	440
530	430
619	650
630	630
631	631
701	593
701	594
701	693
701	694
810	800
830	830
898	898
950	999

ANTHROPOLOGY

Old	New
501	261
502	251

871I	871.09
871J	871.10
899	899
950	999

ARTS AND SCIENCES SURVEY COURSES

Old	New
401	001
605	605
608	608
750	750

ASTRONOMY

Old	New
400	101
402	102
500	150
601	601
605	605
611	611
650	650
651	651
652	652
700	693
751	785
752	786
753	787
801	801
802	802
803	803
811-new	811
812-new	812
813-new	813
821	821
822	822
823	823
841	841
842	842
843	843
850	850
851	851
852	852
853	853
896	862
897	863
895	895
950	999

AVIATION

Old	New
505	211
506	201
507	111
600	401
601	411
603	415
605	419

BIOCHEMISTRY

Old	New
610	511
611	521
613	431

620	531
621	541
701	693
701	785
705	611
706	621
707	612
708	622
709	613
710	623
804	850
807	811
808	821
809	831
813	851
898	898
950	999

BIOLOGY

Old	New
402	102
403	130
505	410
509	420
604	630
617	640
618	631
630	650
6yy	651
699	670
740	730
804	810
816	832
817	860
830	830
831	831

BIOPHYSICS

Old	New
700	700
701	783
702	702
800	800
950	999

BOTANY

Old	New
401	100
402	101
403	102
406	410
new course	440
601	620
602	720
605	430
606	431
613	640
614	641
615	642
635	650
640	643
653	660
655	661
658	662
664	610

665	644
667	632
669	611
670	663
672	500
673	612
674	621
701	693
718	861
725	830
730	831
734	832
735	833
737	withdrawn
754	860
757	810
810	809
820	839
825	829
830	849
new course	834
835	819
860	800
new course	869
896	896
897	897
898	898
950	999

BUSINESS ORGANIZATION

Old	New
510	301
551	220
614	601
615	490
618	640
621	510
623	611
625	612
627	613
642	670
643	772
646	773
647	771
650	620
651	721
652	729
655	722
657	723
660	724
670	727
674	726
676	500
677	630
682	702
685	731
686	660
687	732
691	734
692	769
693	762
695	761
698	739
700-new	700
701-new	701
700	650
702	751
704	758
705	753
706	754
709	756
716	755
720	757
729	750
730	720
749	870



750	780	950	999
760	741	510-new	510
761	743		
764	749		
799	693		
800	800		
802-new	802		
802	801		
803	820		
804	920		
812	880		
813	850		
815	950		
816	951		
817	955		
818	852		
818A	852.01		
818B	852.02		
818C	852.03		
818D	852.04		
818E	852.05		
818F	852.06		
818G	852.07		
819	959		
825	929		
827	822		
829	840		
830	841		
833	900		
834	901		
835	830		
836	832		
838	860		
839	909		
840	803		
841	809		
845	889		
899	899		
930-new	930		
961-new	961		
931-new	931		
960-new	960		
950	999		
799-new			

CERAMIC  
ENGINEERING

Old	New
430	589
521	421
630	489
640	423
650	422
715	611
716	711
719	529
726	741
727	742
731	631
732	632
733	633
734	634
765	785
766	786
775	790
776	791
781	712
782	713
815	889
821	853
822	854
831	851
832	852
841	855
842	856
740	621
750	693

CHEMICAL  
ENGINEERING

Old	New
501	489
593	400
594	401
691	420
692	421
693	693
704	685
719	611
720	612
740	725
741	730
753	608
754	609
755	610
760	760
761	761
763	770
765	777
766	778
770	762
772	764
777	750
790	763
791	785
801	801
815	A-0 815(.01-.15)
820	808
821	809
830	812
831	813
861	861
870	862
880	830
905	881
950	999
new course	771
new course	773
new course	775

CHEMISTRY

Old	New
404	111
405	112
406	113
407	101
408	102
411	121
412	122
413	123
511	201
512	202
513	203
521	211
522	212
523	213
531	221
551	231
552	232
587	587
630	501
631	502
631-new	631
647	241
648	242
649	243

650	244
655	251
656	254
657	252
658	255
659	253
670	521
681	531
682	532
683	533
690	541
691	551
692	552
701	693
721	611
722	612
723	613
726	615
728	622
729	621
742	616
751	671
753	672
754	675
757	632
760	733
761	651
762	652
763	653
772	655
773	855
782	601
784	602
794	635
795	676
803	871
824	991
839	872
841	831
842	832
843	833
844	835
845	836
847	941
848	942
849	943
850	992
861	971
862	972
863	973
864	873
867	995
868	851
869	852
877-new	877
881	875
882	876
885	981
887	881
888	882
889	970
891	997
910	885
950	999

CHINESE

Old	New
401	101
402	102
403	103
404	104
505	405
506	406
517	417
551	251
571	271
609	609

610	610
611	611
624	624
626	626
627	627
651	661
652	651
671	671
695	693
new course	652
new course	653

CITY AND  
REGIONAL  
PLANNING

Old	New
300-new	300
721	811
722	812
742	742
751	841
752	842
753	843
762	832
763	833
793	813
799	794
799A	794.01
799B	794.02
799C	794.03
799D	794.04
799E	794.05
799F	794.06
799G	794.07
799H	794.08
799I	794.09
799J	794.10
799K	794.11
799L	794.12
801	851
802	852
803	853
821	861
822	862
899	899
950	999

CIVIL ENGINEERING

Old	New
412	201
502	401
504	402
506	403
604	430
609	601
611	511
616	510
620	410
622	551
623	552
624	571
650	404
661	581
662	582
669	589
680	680
701	632
703	611
705	731
710	570
711	530

714	631
715	732
716	612
722	672
723	771
724	671
725	651
726	751
728	512
731	752
733	733
734	734
738	673
739	772
741	531
742	613
743	716
744	736
745	776
746	701
748	711
749	712
750	652
761	681
762	682
799	794
805	852
808	801
810	850
815	851
816	853
817	854
818	855
820	872
821	871
825	870
826	830
827	831
828	832
829	833
831	810
832	811
833	812
835	834
896	896
899	885
949	881
950	999
new course	773
new course	713
new course	873
new course	856
new course	857
858-new	858

CLASSICS

Old	New
225-new	225
510	210
520	220
521	221
522	222
524	224
607	507

COMMERCE SURVEY  
COURSES

Old	New
401	001
402	101
798	301

**COMPARATIVE  
LITERATURE AND  
LANGUAGES**

Old	New
401	101
402	102
403	103

**CONSERVATION**

Old	New
401	201
514	202
561	489
new course	693

**DAIRY SCIENCE**

Old	New
401	201
501	withdrawn
504	340
507	207
512	withdrawn
520	420
610	610
612	612
614	613
new course	640
701	593
701	893
714	885
720	720
801	800
812	710
820	820
840	810
898	898
950	999

**DAIRY TECHNOLOGY**

Old	New
401	201
415	289
515	489
520	411
601	521
602	522
603	631
604	632
605	745
609, 610	636
626, 627	634
651	695
701	493
701	693
710	623
800	850
810	885
898	898
950	998
950	999

**DANCE**

Old	New
138-new	138
411	111
412	112
413	113
414	214
415D	215
416D	216
424	199
538	438
539	439
548	248
631	531
632	532
633	533
650	650
657	657
658	658
659	659
701	693
820G	994
190-new	190
534-new	534
535-new	535
536-new	536
537-new	537

**DENTAL HYGIENE**

Old	New
401	201
402	203
403	223
404	283
405	331
501	243
502	311
503	312
504	313
505	372
506	233
507	341
508	321
509	322
510	323
511	351
512	361
513	382
514	383
515	301
516	393

**DENTISTRY**

Old	New
301	301
302	302
303-new	303
305	305
306	306
320	320
381	381
382	382
386	386
389	389
403	403
404	404
413	413
431	431
432	432

433	433
452	452
453	453
462	462
463	463
482	482
483	483
484	484
485	485
486	486
487	487
489	489
501	501
502	502
511	511
512	512
513	513
531	531
532	532
533	533
540	540
541	541
542	542
545	545
546	546
547	547
548	548
549	549
551	551
552	552
553	553
555	555
556	556
560	560
561	561
562	562
563	563
572	572
573	573
581	581
582	582
583	583
584	584
585	585
586	586
587	587
593	593
600	785
601	601
602	602
603	603
604	604
605	605
606	606
612	612
613	613
621	621
622	622
623	623
631	631
632	632
633	633
645	645
646	646
647	647
648	648
649	649
651	651
652	652
653	653
661	661
662	662
663	663
672	672
673	673
681	681
682	682
683	683
684	684
685	685
686	686
693	793
800	700

800A	700.01
800B	700.02
800C	700.03
800D	700.04
800E	700.05
800F	700.06
800G	700.07
800H	700.08
800I	700.09
800J	700.10
805	795
950	999
641-new	641
642-new	642
643-new	643

**ECONOMICS**

Old	New
201-new course	201
402-new course	402
501-new course	501
502-new course	502
542	442
560	560
600	500
606	506
610	610
612	512
623	520
625	625
634	630
636	530
644	644
651	651
653	553
655	655
656	656
663	663
665	665
666	666
667	691
668	580
670	670
671	570
672	672
676	676
677	677
680	680
683	683
684	684
688	688
690	690
697	697
698	698
699	693
700	599
708	805
709	806
713	613
714	614
740	640
741	641
742	642
745	645
770	679
798	694
800	800
801	801
802	802
803	803
804A	808
804B	809
807	807
810	810
811	811
820	820
821	821

**EDUCATION**

Old	New
401	010
402	011
404	012
405	013
408	108
440	120
441	231
442	232
442-new	442
443	233
444	234
445	235
446	420
450	424
451	425
456	430
460	242
471	201
472	211
473	212
505	289
505A	289.01
505B	289.02
505C	289.03
505E	289.04
505K	289.05
505M	289.06
505S	289.07
505T	289.08
505U	289.09
509	501
510	502
513-new	513
514	461
515	460
516	507
517	508
518	585
518A	585.10
518B	585.11
518C	585.12
518D	585.13
520	586
520A	586.14
520B	586.15
520C	586.03
520S	586.07
520T	586.08
520-new	520
521	467
521-new	521
522	243
528	511
535	435
536	587
536A	587.14
536B	587.15
536C	587.03



536D	587.16	650	660	776	929	new course	842	739	710
536F	587.17	651	661	777	723	844	949	740	660
536G	587.21	654	812	778	724	new course	845	741	684
536H	587.22	655	832	779	839	845	940	742	760
536J	587.23	656	813	780	529	848	941	743	701
536L	587.18	657	814	781	605	849	848	744	707
536M	587.24	659	546	782	606	850	944	746	703
536N	587.25	660	621	799	692	851	851	747	702
536O	587.19	661	815	799A	692.23	853	953	748	708
536P	587.26	663	612	799B	692.33	854	942	756	713
536Q	587.27	666	652	799C	692.10	855	943	763	720
536R	587.28	667	665	799C	692.10	856	836	764	727
536S	587.07	669	613	799D	692.34	859	917	768	631
536T	587.08	670	560	799J	692.43	863	865	769	632
536U	587.09	671	561	799K	692.49	864	829	781	721
536X	587.29	674	614	799M	692.44	865	873	782	728
536Z	587.20	676	859	799R	692.28	886	871	784	715
537	588	677	526	799T	692.47	868	866	787	732
537A	588.30	681	627	799T	692.47	870	950	788	714
537C	588.09	682	691	799T	692.47	871	951	789	733
537D	588.31	688	540	799X	692.29	872	954	790	740
537E	588.04	689	622	800	925	873	955	791	747
537L	588.32	692	616	800A	926.23	875	956	792	741
538	589	694	618	800B	925.33	876	957	793	748
543	523	695	649	800C	925.10	880	958	794	742
544	524	701	860	800D	925.34	885	870	815	800
547	433	702	861	800E	925.35	886	871	817	817
560	246	703	862	800F	925.40	887	872	818	818
561	532	704	816	800G	925.21	898	934	827	804
562	533	705	864	800H	925.22	899	899	828	805
563	534	706	849	800I	925.41	950	999	830	802
575	575	708	863	800J	925.43	new course	964	831	803
581	251	710	858	800M	925.44	new course	965	832	810
585	255	711	927	800N	925.25	new course	966	833	840
600	693	712	850	800O	925.45	new course	967	834	853
600A	693.23	713	653	800P	925.26	new course	970	841	820
600B	693.33	714	833	800Q	925.27	new course	971	842	821
600C	693.10	715	834	800R	925.28	new course	880	844	829
600D	693.34	717	807	800S	925.46			845	822
600E	693.35	718	654	800T	925.47			846	823
600F	693.40	719	655	800U	925.09			847	850
600G	693.21	720	656	800V	925.48			848	851
600H	693.22	722	800	800X	925.29			850	811
600I	693.41	723	801	800Y	925.49			851	813
600J	693.43	724	802	802	968			852	816
600M	693.44	725	803	804	867			853	812
600N	693.25	726	804	808	947			854	830
600O	693.45	727	946	809	915			855	831
600P	693.26	728	805	810	916			856	832
600Q	693.27	730	717	815	835			857	834
600R	693.28	731	838	818	881			858	835
600S	693.46	732	719	823	952			859	836
600T	693.47	734	713	new course	823			860	808
600U	693.09	735	714	new course	824			861	809
600V	693.48	736	715	825	948			870	814
600X	693.29	741	817	new course	827			new course	880
600Y	693.49	747	818	831	868			881	881
601	677	748	819	832	939			895	895
602	675	749	820	835	993			899	899
new course	601	750	874	835A	993.23			950	999
new course	602	752	875	835B	993.33			540	630
603	617	753	821	835C	993.10			520	693
604	551	754	876	835D	993.34			640	694
605	625	755A	877	835F	993.40			641	712
606	626	755B	878	835G	993.21			642	761
607	637	756	879	835H	993.22			507	794
608	666	757	911	835I	993.41			508	860
new course	608	758	912	835J	993.43			517	861
609	667	759	913	835M	993.44			627	815
611	659	760	914	835N	993.25			628	910
612	662	761	841	835O	993.45			647	819
613	663	762	843	835P	993.26			657	806
617	712	764	710	835Q	993.27			707	833
619	668	766	718	835R	993.28			716	
624	624	768	768	835S	993.46			718	
627	556	768.51	768.51	835T	993.47			719	
628	631	768.52	768.52	835U	993.09			723	
632	632	770	672	835V	993.48			724	
636	636	771	673	835X	993.29			725	
641	610	772	647	836	959			728	
643	811	774A	931	837	960			731	
644	669	774B	932	838	961			733	
649	690	775	928	840	844			734	
				841	869			738	

ELECTRICAL  
ENGINEERING

Old	New		
504	580		
612	501		
613	502		
614	503		
615	504		
617	510		
618	511		
619	512		
625	581		
626	620		
627	621		
628	622		
642	500		
643	540		
644	520		
650	640		
651	641		
652	642		
662	507		
663	508		
664	517		
665	627		
667	628		
668	647		
669	657		
707	700		
716	650		
718	711		
719	717		
723	767		
724	718		
725	757		
728	751		
731	753		
733	752		
734	758		
738	754		

ENGINEERING  
GRAPHICS

Old	New
400	100
402	102
new course	111

**ENGINEERING  
GRAPHICS (Cont'd)**

new course	112
439	129
new course	184
499	199
504	204
506	206
508	208
537	237
755	755

**ENGINEERING  
MECHANICS**

Old	New
511	201
512	202
513	203
521	210
602	420
605	521
606	522
607	410
617	510
650	200
703	627
704	748
707	731
712	621
715	751
716	624
717	711
718	752
725	754
727	757
735	840
740	740
741	741
750	700
799	694
801	881
807	831
808	732
810	860
817	811
820	847
824	854
825	855
827	835
830	812
840	843
845	845
950	999
new course	660
new course	833
new course	832
new course	864
new course	889

**ENGINEERING  
SURVEY COURSES**

Old	New
401	101
402	102
601	501

**ENGLISH**

Old	New
406	071
407	072
408	073
416	101
417	102
418	103
419	104
420	105
505	301
506	302
507	265
508	266
510	290
519	305
520	260
521	261
529	280
540	240
550	220
555	262
563	293
564	294
609	551
610	552
614	643
615	553
616	665
620	670
621	676
625	570
626	671
627	672
635	531
636	535
640	642
641	540
642	541
643	565
648	667
653	615
654	513
656	641
670	649
671	522
674	621
676	520
677	624
678	634
689	680
690	699
701	693
702	871
703	872
704	873
705	783
708	851
709	852
710	876
715	880
717	865
727	847
728	848
735	831
736	833
737	832
738	835
742	841
744	842
745	840
746	813
747	814
749	810
751	811
754	812
755	877
756	878
757	815
771	822
772	821

773	823
775	830
776	820
835	935
836	936
837	933
838	934
842	940
843	941
852	910
853	911
854	912
855	913
865	950
866	951
875	922
876	923
877	920
878	921
880	980
881	982
950 & 750	999

**ENTOMOLOGY**

Old	New
550	200
551	460
566	561
600	431
608	602
640	660
650	500
651	621
653	662
655	661
670	611
671	612
701	693
701	694
705	751
706	752
712	753
814	841
816	802
817	821
850	831
896	896
897	897
950	999
new course	870
new course	871
new course	361
new course	670

**FINE ARTS**

Old	New
new course	281
400	100
401	190
402	295
406	297
407	270
411	296
421	170
423	171
430	290
431	251
432	252
433	253
459	200
461	180

484	140
490	240
491	244
494	111
497	110
500	175
501	210
502	211
503	212
505	272
509	213
new course	520
526	276
527	274
528	273
530	260
534	280
548	401
549	402
554	450
555	451
556	452
558	258
562	282
569	300
570	500
572	468
573	469
576	465
577	250
new course	580
new course	581
582	460
583	461
584	462
585	530
587	242
590	245
591	withdrawn
592	246
593	441
594	442
595	443
600	603
603	650
604	651
605	550
606	551
607	552
608	660
609	661
610	662
626	616
new course	617
625	570
627	618
628	619
new course	629
629	636
new course	630
630	571
632	624
new course	633
633	625
635	665
636	666
new course	637
637	667
new course	640
new course	641
new course	642
643	677
644	572
new course	652
654	515
660	573
661A,B,C,D,E, G,H,I,J,K, P,S	693(.01-.11)
662	withdrawn
663	withdrawn
669	638
670	621

671	622
675	615
678	635
679	613
new course	680
684	627
685	816
686	631
687	670
688	678
689	620
701	993
701A	993.01
701C	993.03
701D	993.04
701E	993.05
701G	993.06
701P	993.10
701S	993.11
702	withdrawn
703	withdrawn
704	726
705	879
708	725
710	805
714	806
715	807
718	804
720	715
721	839
722	840
723	841
724	875
725	876
726	870
727	871
728	582
729	681
730	718
799	501
801	withdrawn
801C	940
801D	950
801E	911
801G	971
801P	970
801S	980
802	withdrawn
803	withdrawn
804	withdrawn
804A	914
804B	939
804C	917
804D	930
804E	932
804F	920
813	845
814	846
815	847
816	848
817	874
818	881
819	885
820	887
950	999

**FORESTRY**

Old	New
new course	432
408	222
409	221
410	310
421	321
423	323
425	325
502	223
701	593



950 ..... 999  
new course ..... 431  
new course ..... 433

**FRENCH**

Old	New
401	101
402	102
403	103
404	104
405	571
new course	572
new course	573
410	105
415	162
416	163
517	421
518	401
521	402
522	403
529	422
530	423
532	404
535	441
570	271
603	624
604	625
616	621
617	622
618	623
619	602
628	601
634	627
636	641
638	603
639	629
640	626
642	604
645	631
651	628
701	693
705	783
new course	794
717	824
718	825
719	826
720	827
729	811
731	885
801	812
802	813
803	828
804	829
805	822
811	831
812	832
813, 713	821
817	833
880	886
950	999
new course	112

**GEODETIC SCIENCE**

Old	New
new course	512
new course	513
new course	522
new course	613
new course	614
617	663

new course	624
625	625
new course	627
new course	631
new course	641
653	642
686	686
687	687
688	688
689	689
new course	693
new course	694
721	626
723	821
725	822
758	657
759	852
794	994
795	887
new course	812
823	823
825	825
new course	826
new course	844
new course	846
new course	847
751 & 851	863
new course	853
855	868
new course	885
950	999

**GEOGRAPHY**

Old	New
401	220
403	240
503	340
504	200
505	400
510	580
603	640
604	530
605	401
611	681
615	520
620	411
new course	620
621	410
622	412
624A,B	405(.01, .02)
625	416
626	415
627	408
630	545
631	546
633	647
634	650
new courses	660 and 670
700	885
701	693
702	682
712	560
798	694
802A,B	883(.01, .02)
803A-D	840(.01-.04)
804	800
805	860
806A,B	850(.01, .02)
807A,B,C	820(.01-.03)
811	882
812	880
850	889
896	896
897	897
899	899
950	999

**GEOLOGY**

Old	New
416	100
417	101
418	102
505	200
520	201
524	202
525	203
533	204
new course	570
600	560
601	550
602	530
605	660
607	661
613	650
618	500
619	501
622	612
623	611
624	610
625	613
627A	581.01
627B	581.02
630	880
632	580
634	640
635A	641
635B	642
636	652
637	651
new course	670
701	693
701A	693.01
701B	693.02
701C	693.03
701D	693.04
701E	693.05
701F	693.06
701G	693.07
701H	693.08
701I	693.09
701J	693.10
701K	693.11
701L	693.12
701M	693.13
701N	693.14
701O	693.15
701P	693.16
701Q	693.17
705	663
706	631
708	680
709	662
713	602
720	632
725	630
735	643
736	644
740	620
820	870
821	871
822	872
823	873
825	830
827	850
851	874
855	695
896	896
950	999
new course	600
new course	601
new course	621
new course	681
new course	810
new course	820
new course	821
851	851

**GERMAN**

Old	New
new course	261
new course	262
401	101
402	102
403	103
404	104
409	109
412	112
417	117
418	118
420	113
421	114
499	571
501	572
502	119
503	203
504	204
571	361
572	362
new course	573
575	225
576	226
577	227
new course	611
new course	612
650	650
656	606
661	621
662	622
663	623
685	630
691	635
new course	694
701	693
705	605
721	721
722	722
723	723
724	724
725	725
726	726
801	801
805	802
810	803
815	806
821	821
822	822
823	823
860	860
870	870
950	999

**GRADUATE SCHOOL**

Old	New
701	801

**GREEK**

Old	New
401	101
402	102
403	103
415	112
504	200
506	210
603	603
604	201
606	606
607	202

608	608
609	609
612-new	612
631	693
670	810
705	850
706	851
707	852
800-new	800
802-new	802
803-new	803
804-new	804
993-new	993
995-new	995
996-new	996
999-new	999

**HEALTH EDUCATION**

Old	New
400	101
473	102
510	200
609	300
610	301
641	602
644	610
645	620
692	621
701	693
705	603
799	690
801	995
820	994
820J	994.01
820K	994.02
820L	994.03
950	999
new course	501
new course	103
new course	201
996-new	996

**HISTORY**

Old	New
401	101
402	102
403	103
404	104
421	121
422	122
423	123
504	230
510	212
511	210
512	211
513	231
517	213
520	220
537	232
538	233
590	215
607	609
608	610
609	630
610	632
617	612
618	668
619	606
620	614
622	628

## HISTORY (Cont'd)

623	629
624	613
626	641
627	642
628	643
629	618
630	620
631	675
633	661
634	662
635	670
636	671
639	676
640-new	640
641	660
642	672
643	682
644	656
645	651
646	652
647-new	647
648	658
649	602
649-new	649
650	604
651	648
653	600
654-new	654
655-new	655
656	603
668	664
673	680
674	681
675	635
676	636
677	637
678	639
679	653
681	638
686	633
687	622
689	683
693	301
694	644
695	645
696	648
697	679
698	646
700	693
705	783
715-new	715
716-new	716
717-new	717
718-new	718
719-new	719
720-new	720
721-new	721
722-new	722
723-new	723
724-new	724
737	871
738	872
771A	740
771B	741
789	730
790	731
809	800
810	801
811	802
812A	811
812B	812
813	813
814	814
815	803
816	804
817	805
819	865
820	866
821	867
822	868

823	869
824	870
825	850
845-new	845
862-new	862
863-new	863
864-new	864
880-new	880
899	899
950	999
new course	240
new course	615
new course	616
new course	621
new course	631
new course	648
new course	650
new course	659
new course	665
new course	666
new course	667
new course	673
new course	674
new course	677
new course	694

## HOME ECONOMICS

Old	New
400	090
440	110
505	371
505	371
506	322
507	274
508	470
510	320
512	328
513	228
518	325
530	270
531	374
541	441
542	442
543	443
545	435
548	310
549	314
550	413
555	313
559	326
560	327
561	362
562	360
563	363
570	230
571	430
580	422
585A,B,C,D, F,G,H,I, J,L.....	589(.01-.10)
599	290
601	574
604	674
610	610
612	612
615	615
616	616
619	423
622	622
623	623
627	427
628	628
630	630
631	431
632	632
633	633

634	634
640	596
662	662
663	663
664	462
665	463
666	598
670	870
671	671
672	672
673	571
680	595
701A-J.....	893(.01-.10)
702	845
705	810
715	813
719	827
720	825
721	826
731	635
735	816
740	841
741	846
742	844
750	840
761	860
762	667
771	871
794	794(.01-.10)
799A-J.....	690(.01-.10)
801	782
810	802
820, 821	822
830	830
831	832
840	842
841	843
861	862
898	898
899	899
950	999
new	538
new	590
new	593(.01-.10)
new	594(.01-.10)
new	711
new	861

## HORTICULTURE

Old	New
403	203
408	111
423	241
440	415
503	461
504	462
522	450
524	441
526	650
542	422
544	431
550	432
551	433
552	434
570	489
601	601
609	609
610	610
622	652
624	642
629	741
631	641
643	622
645	623
650	733
651	624

683	731
701	593
701	893
701	599
705	805
710	794
712	812
713	732
804	804
810	801
811	811
897	897
898	898
950	999
new course	442
new course	611
new course	690
new course	694
new course	699

INDUSTRIAL  
ENGINEERING

Old	New
404	201
420	202
519	401
521	402
602	403
614	431
630	589
633	532
639	685
663	501
664	502
667	531
706	601
708	506
709	505
714	533
715	534
761	504
764	602
771	503
798A	750.01
798B	750.02
798C	750.03
798D	750.04
798E	750.05
798F	750.06
798G	750.07
798H	750.08
798I	750.09
798J	750.10
798K	750.11
798L	750.12
798M	750.13
799	693
801	881
802	881
803	881
811	811
812	812
821	821
828	828
840	840
842	842
843	843
844	844
851	851
861	861
862	862
863	863
866	866
871	871
899	899
950	999

INTERDEPART-  
MENTAL SEMINARS

Old	New
895	895
896	896
897	897
898	898
899	899

INTERNATIONAL  
STUDIES

Old	New
410	100
520	235
540	230
601	501
705	783

## ITALIAN

Old	New
401	101
402	102
new	103
new	104
new	112
503	421
504	422
505	423
510	202
new	534
611	621
612	622
613	623
701	693
950	999
new	794

## JAPANESE

Old	New
new course	251
new course	252
401	101
402	102
403	103
404	104
505	405
506	406
517	417
609	609
610	610
611	611
new course	624
new course	626
new course	651
695	693

## JOURNALISM

Old	New
401	101
402	201
501	204



505	641	406	200
509	205	407	201
510	203	408	202
517	102	412	050
519	211	415	112
602	601	501	300
603	623	502	301
605	401	505	303
606	611	540	340
607	612	544	344
608	642	603	603
612	602	612	612
613	621	615	615
615	622	616	616
617	631	617	617
618	632	625	625
619	633	627	627
621	624	631	631
624	651	650	850
626	626	651	851
627	634	652	852
699	625	701	993
700	783	702	802
711	693	703	803
714	206	704	804
802	801	705	805
803	802	706	806
804	803	707	807
899	899	720	820
950	999	800	800
202-new	202	861	808
555-new	555	809-new	809
627-new	627	810-new	810
643-new	643	811-new	811
811-new	811	855-new	855
812-new	812	856-new	856
813-new	813	860-new	860
911-new	911	800-new	861
		862-new	862
		995-new	995
		996-new	996
		950	999

LANDSCAPE  
ARCHITECTURE

Old	New		
300-new	300		
507	201		
508	202		
509	203		
550	200		
587	221		
588	222		
589	223		
617	611		
618	612		
619	613		
627	661		
628	662		
629	663		
687	621		
688	622		
689	623		
693-new	693		
717	711		
718	712		
719	713		
759	750		
787	721		
788	722		
789	723		

LATIN

Old	New		
401	101		
402	102		
404	103		
405	104		

655	705
658A	614
658B	615
659	709
660	616
661	617
662	710
663	711
664	618
665	619
666	620
667	712
668	713
670	621
671	714
673	622
674	715
677	716
678	623
679	717
680	718
681	624
682	719
684	625
693	793
695	795
695A	795.01
695B	795.02
695C	795.03
695D	795.04
695E	795.05
695F	795.06
695G	795.07
696	796
696A	796.01
696B	796.02
696C	796.03
696D	796.04
696E	796.05
696F	796.06
696G	796.07
696H	796.08
696I	796.09
696J	796.10
696K	796.11
696L	796.12
696M	796.13
696N	796.14
696O	796.15
696P	796.16
696Q	796.17
696R	796.18
696S	796.19
696T	796.20
696U	796.21
696V	796.22
new	796.23
new	796.24
new	796.25
new	796.26
new	796.27
720-new	720
721-new	721
626-new	626
794-new	794

LINGUISTICS

Old	New		
522	201		
523	202		
600-new	600		
601	601		
602	602		
603	603		
650	650		
671	671		
672	672		

673-new	673
679	679
681-new	681
701	693
720	795
761	801
762	802
771	811
803-new	803
812-new	812
820	820
821	821
822	822
950	999

MATHEMATICS

Old	New		
108-new	108		
410	105		
412	101		
413	109		
414	110		
416	116		
417	117		
435	125		
439	150		
440	151		
441	152		
542	153		
543	254		
544	255		
545	205		
546	421		
590	241		
601	550		
607	552		
609	412		
611	556		
621	507		
622	413		
624	414		
626	557		
631	504		
636	501		
637	502		
641	503		
642	570		
643	611		
645	560		
646	612		
647	613		
651	614		
652	505		
661	506		
665	551		
666	545		
670	546		
672	571		
673	520		
674	521		
680	522		
692	573		
694	541		
695	642		
698	543		
699	645		
700	694		
701	693		
702	750		
704	751		
705	767		
721	768		
722	602		
723	701		
725	601		
726	702		

727	704
728	705
729	706
730	603
731	722
733	721
734	824
741	755
742	756
743	680
750	857
751	858
761	770
762	771
763	772
790	740
793	741
794	742
795	743
798	794
801	753
802	754
807	763
808	764
815	867
817	863
818	864
819	978
821	859
826	959
827	960
830	847
831	848
841	851
842	852
849	925
850	926
855	830
856	831
857	832
862	979
864	972
865	980
871	873
872	874
873	876
880	877
950	999
new course	121
new course	122
new course	123
new course	190
new course	191
new course	192
new course	290
new course	291
new course	292
new course	294
new course	425
new course	426
new course	528
new course	529
new course	553
new course	574
new course	593
new course	608
new course	620
new course	621
new course	622
new course	629
new course	641
new course	643
new course	651
new course	652
new course	653
new course	662
new course	670
new course	671
new course	672
new course	674
new course	720
new course	725
new course	726

**MATHEMATICS  
(Cont'd)**

	703	720
	704	721
	710	741
	716	742
new course	727	721
new course	728	722
new course	729	723
new course	746	724
new course	749	725
new course	752	726
new course	760	736
new course	761	745
new course	762	755
new course	779	756
new course	780	761
new course	781	762
new course	782	763
new course	825	767
new course	826	768
new course	827	769
new course	828	770
new course	844	771
new course	846	772
new course	854	773
new course	855	778
new course	860	779
new course	861	780
new course	862	798
new course	865	799
new course	866	801
new course	869	802
new course	931	803
new course	932	807
new course	933	809
new course	934	810
new course	935	811
new course	936	812
new course	937	820
new course	938	821
new course	949	822
new course	950	830
new course	951	831
new course	954	832
new course	957	840
new course	961	841
new course	970	843
new course	971	844
new course	973	853
new course	974	854
new course	975	855
new course	981	860
new course	982	861
new course	983	890
new course	984	950
new course	985	30-new
new course	986	870-new
new course	987	
new course	988	
new course	989	
new course	990	
new course	996	
new course	997	
new course	998	

**MECHANICAL  
ENGINEERING**

Old	New
601	500
607	501
608	502
609	503
610	510
614	520
615	551
616	552
621	511
627	450
672	505

**MEDICAL  
DIETETICS**

Old	New
501	201
510	310
515	421
516	422
517	423
new course	521
new course	522
601	631
602	632
620	644
622	645
626	636
627	637
628	638
new course	646
785	693

**MEDICAL  
MICROBIOLOGY**

Old	New
624	624
625	625
new course	793
new course	793.01
new course	793.02
new course	793.03
new course	793.04

**MEDICAL  
TECHNOLOGY**

Old	New
640	511
641	512
642	514
643	513
646	515

**MEDICINE**

Old	New
601	601
602	602
603-new	603
661	661
675	575
714	714
715	715
new course	715.01
new course	715.02
new course	715.03
new course	715.04
new course	715.05
new course	715.06
new course	715.07
new course	715.08
new course	715.09
new course	715.10
new course	715.11
new course	715.12
770	770
771	771
793 A-K	793 (01-12)
798	798
799	799
950	999
new course	603
795-new	850

**METALLURGICAL  
ENGINEERING**

Old	New
420	489
new course	490

new course	500
501	410
560	440
611	400
630	450
631	451
632	550
645	589
661	430
662	431
663	420
671	590
672	591
673	592
703	551
704	552
710	693
712	530
716	675
721	610
722	611
724	710
730	635
731	735
735	660
740	750
741	745
742	851
743	852
745	615
759	670
760	671
761	520
762	521
763	620
770	740
771	841
772	842
776	502
780	855
790	845
801	881
815	820
820	860
830	835
835	861
844	730
845	831
850	800
851	801
852	802
901	884
950	999
new course	736
new course	832

**MICROBIOLOGY**

Old	New
409	209
509	509
510	210
511	211
512	212
602	612
603	613
605	605
607	607
610	630
620	729
622	622
623	623
633	609
634	734
635	760
636	636
638	761
649	749
652	652
701	693

710	710
720	820
722	822
735	860
807	880
896	896
897	897
898	898
950	999
new course	625
new course	639
new course	723
new course	725
new course	736
new course	765
new course	770
new course	780
new course	781
new course	824

**MILITARY  
SCIENCE**

Old	New
401	101
402	102
403	103
501	201
502	202
503	203
601	301
602	302
603	303
701	401
702	402
703	403

**MINERALOGY**

Old	New
506	414
511	411
512	412
601	645
605	605
611	624
621	621
701	784
706	706
722	722
725	823
730	730
754	654
755	665
801	881
950	999
new course	650
new course	875
new course	876
new course	858
new course	831
new course	807
new course	808

**MUSIC**

Old	New
400	001
400A	001.01
400B	001.02
400C	001.03
400D	001.04
400E	001.05





## OPTOMETRY

Old	New
514	441
515	442
516	443
531	431
532	432
533	433
541	641
542	642
543	643
545	745
555	701
556	702
557	703
561	721
563	722
601	741
602	742
603	743
651	651
652	652
653	653
660	660
new course	401

## OTOLARYNGOLOGY

Old	New
751	751
793	793
794	794
799	799
new course	820
new course	850
new course	850.01
new course	850.02
new course	850.03
new course	850.04
new course	850.05
new course	999

## PATHOLOGY

Old	New
603	603
624	624
625	625
626	626
630	501
631	502
632	504
633	503
636	506
637	507
645	505
650	550
655	655
793 new	793(.01-.15)
798	798
799	799
800	850
950	999
new course	792
new course	792.01
new course	792.02
new course	792.03
new course	792.04
new course	792.05
new course	792.06
new course	792.07
new course	792.08

## PEDIATRICS

Old	New
715	715
716	new course
793	793
793A	793.01
793B	793.02
793C	793.03
793D	793.04
793E	793.05
793F	793.06
793G	793.07
793H	793.08
793I	793.09
793J	793.10
793K	793.11
793L	793.12
793M	793.13
793N	793.14
794	794
794A	794.01
794B	794.02
794C	794.03
794D	794.04
794E	794.05
794F	794.06
794G	794.07
794H	794.08
794I	794.09
794J	794.10
794K	794.11
798	798
799	799
900	850
950	999

PETROLEUM  
ENGINEERING

Old	New
602	442
713	542
723	543
735	641
736	642
737	544
750	743
750C	743.01
750D	743.02
765	796
802	842
950	999

## PHARMACOLOGY

Old	New
600	600
601	601
610	610
700	700
701	701
750	850
770	770
793	853
820	720
821	721
822	722
823	723
845	745
851	751
950	999
new course	752

## PHARMACY

Old	New
401	401
402	402
470	470
503	503
504	504
505	505
509	520
512	524
513	525
514	511
521	450
522	451
530	430
531	431
550	490
551	491
600	579
601	675
602	577
604	534
605	535
606	606
607	570
610	635
613	613
614	435
615	690
619	677
621	507
622	508
623	509
632	632
643	515
645	695
647	609
650	625
693	693
708	671
709	672
711	636
712	737
714	680
715	615
717	553
718	754
725	715
730	789
805	805
806	806
807	816
808	817
809	809
811	811
812	812
825	825
826	826
833	855
835	835
836	836
845	845
846	846
850	850
851	851
852	852
853	853
870	870
871	871
872	872
880	880
881	881
890	993
950	999

## PHILOSOPHY

Old	New
400	100
401	101
402	150
405	130
406	170
510	230
515	240
601	511
602	512
603	513
604	611
607	613
609	714
618	672
633	718
634	721
635	717
636	719
637	720
638	712
639	713
640	724
642	615
646	722
647	723
649	650
650	651
652	676
653	675
654	677
657	767
661	760
663	763
664	764
665	671
666	673
671	631
701	693
720	770
807	875
821	850
822	864
823	861
824	831
825	811
826	885
827	841
828	870
829	877
830	853
950	999
520	210
617	617
new course	641
new course	653
new course	715
new course	761
new course	771

## PHOTOGRAPHY

Old	New
511	201
603	506
605	505
610	507
615	508
625	594
650	501
699	693

PHYSICAL  
EDUCATION

Old	New
401	101
402	102
403	103
411	131
412	132
413	133
414	231
415	232
416	233
new course	420
new course	420.01
new course	420.02
new course	420.03
new course	420.04
new course	420.05
new course	420.06
new course	420.07
new course	420.08
new course	420.09
new course	420.10
new course	420.11
new course	420.12
421	104
422	105
423	106
425	107
426	108
427	109
482	270
514	214
520	221
521	222
541	541
542	542
543	543
551	589
560	271
576	323
601	820
615	630
616	530
621	621
625	650
630	662
640	640
647	647
648	648
649	770
655	771
682	642
685	661
691	660
701	693
799	690
802	995
803	996
805	841
810	850
814	842
816	830
820	994
820A	994.01
820B	994.02
820C	994.03
820D	994.04
820E	994.05
820F	994.06
820G	994.07
820H	994.08
820I	994.09
823	860
825	885
826	880
846	831
950	999



**PHYSICAL MEDICINE**

Old	New
715	715
735	735
736	736
745	745
750	750
new course	770
793	993
799	799
new course	999
736	
750	

726	621
709	624
612	632
606	636
648	651
610	661
701	693
730	715
733	717
734	718
740	721
741	722
742	723
727	727
728	728
712	733
713	734
714	735
702	742
703	743
704	744
718	751
720	753
719	757
716	761
721	771
723	773
711	775
881	801
new course	816
840	821
841	822
817	827
818	828
819	829
805	834
806	835
824	847
825	848
813	850
851	857
852	858
833	863
834	864
820	871
821	872
822	873
823	875
846	876
847	877
860	880
861	881
862	882
843	885
844	886
950	999

815	850
821	821
822	822
823	823
825	835
898	898
950	999

**PHYSIOLOGICAL OPTICS**

Old	New
611	511
612	512
613	613
614	614
620	520
new course	795
701	693
715	715
716	716
730	730
731	731
732	732
801	801
802	802
803	803
950	999
new course	810
new course	811
new course	812
new course	813

**PHYSIOLOGY**

Old	New
410	110
506	311
507	312
601	516
602	517
604	604
605	605
623	623
new course	828
630	630
635	635
636	636
645	645
646	646
648	648
652	510
793	793
725	825
726	826
740	840
807	807
815	850
950	999

**PLANT PATHOLOGY**

Old	New
519	470
649	471
650	675
651	671
652	672

660	872
666	873
671	670
701-new	693
751	874
815	879
850	871
950	999

**POLISH**

Old	New
601	601
602	602
603	603
604	604
605	605
606	606
620	620
621	621

**POLITICAL SCIENCE**

Old	New
new course	378
401	100
507	265
508	200
509	225
510	205
530	245
599	275
600	594
601	565
605	610
606	611
607	505
609	506
611	668
612	650
613	545
614	612
615	615
616	616
618	520
621	670
622	671
623	672
624	573
625	626
627	540
628	627
633	677
634	676
635	575
636	630
637	655
640	656
649	658
650	635
651	636
652A	559
652B	560
652C	561
652D	562
652E	563
655	601
701	693
705	783
714	651
730	719
731	790
734	778
735	794
736	779

737	731
new course	700
new course	725
new course	745
new course	765
new course	775
new course	801
805	866
806	826
807	876
808	813
809	807
810	846
811	818
899	899
950	999

**PORTUGUESE**

Old	New
701	693
401	101
402	102
403	103
404	104
new course	794

**POULTRY SCIENCE**

Old	New
401	200
501	310
503	311
521	589
613	640
618	650
701	593
701	893
750	695
898	898
950	999

**PREVENTIVE MEDICINE**

Old	New
595	585
618	618
624	624
735	735
750	851
753	753
755	850
760	856
761	858
793	793(.01-.07)
799	799
810	810
new course	811
new course	812
820	820
new course	821
new course	822
850	860
851	861
852	862
898	898
899	899
950	999

**PHYSICAL THERAPY**

Old	New
500	100
501	301
502	302
503	303
510	310
600	304
602	402
603	403
604	404
605	405
607	407
608	485
609	450
610	451
611	452
612	400
613	486
614	487
615	415
616	416

**PHYSICS**

Old	New
401	101
402	102
411	111
412	112
413	113
420	120
531	231
532	232
533	233
505	435
506	436
535	437
536	438
602	472
645	501
643	503
641	506
637	507
638	508
639	509
634	514
new course	516
601	521
608	531
605	535
603	541
614	551
615	571
616	616

**PHYSIOLOGICAL CHEMISTRY**

Old	New
311A	311.01
311B	311.02
312A	312.01
312B	312.02
601	601
602	602
603	613
611	611
612	612
614	734
632	540
633	545
702	830
715	725
720	706
793	793
812	855

## PSYCHIATRY

Old	New
737	737
793	793
794	794
795	795
799	799
800	850
950	999
new course	707
new course	708
new course	709
new course	710
new course	711
new course	712
new course	713
new course	714
new course	715
new course	716
new course	717
new course	718
new course	719
new course	720
new course	721
new course	722
new course	723
new course	740
new course	741
new course	742
new course	745
new course	746
new course	747
new course	749
new course	850
new course	751

## PSYCHOLOGY

Old	New
401	100
402	101
403	300
404	210
407	230
408	110
411	120
504	310
505	311
506	312
507	340
508	220
521	320
541	330
581	130
601	500
605	501
606	502
608	510
609	570
610	551
611	680
613	511
615E	683
622	684
623	620
626	600
628	671
629	610
631	631
632	670
633	633
635	624
636	681
637	621
639	622
640	541

644	623
646	505
648	632
650	693
655	601
659	540
663	550
666	552
667	504
670	661
671	682
674	650
676	560
677	520
678	530
679	630
680	611
683	651
687	503
689	542
690	640
695	531
700	599
703	794
704	512
713	612
718	865
782	880
788	788
802	811
803	849
804	824
805	812
806	867
new course	826
807	819
new course	807
new course	808
810	847
811	801
812	870
813	873
814	829
815	831
816	828
new course	816
new course	817
818	860
819	830
821	882
822	887
new course	822
823	884
824	854
825	810
827	881
new course	827
831	800
832	885
833	886
834	871
new course	835
new course	836
838	840
new course	839
840	837
841	802
new course	841
843	805
844	804
845	803
new course	846
new course	848
851	842
852	883
853	809
new course	853
854	838
855	823
new course	855
new course	856
new course	857
new course	858

new course	859
861	861
862	862
863	863
864	864
865	866
new course	872
new course	874
880	980
899	899
950	999
new course	660

## RADIOLOGY

Old	New
740	740
750	750
793	793
799	799
950	999

ROMANCE  
LINGUISTICS

Old	New
701	693
new course	794
822	831
847	811
848	812

RURAL  
SOCIOLOGY

Old	New
405	105
506	317
606	600
609	316
630	310
640	421
660	422
701	593
701	693
901	996
new course	996.01
new course	996.02
new course	996.03
new course	996.04
new course	996.05
new course	996.06
new course	996.07
new course	996.08
new course	996.09
new course	996.10
new course	996.11
new course	996.12
950	999

## RUSSIAN

Old	New
401	101
402	102
403	103
404	104

407	107
408	108
409	109
415	112
430	130
431	131
505	405
506	406
507	407
508	408
516	412
517	612
520	420
521	421
575	475
576	476
577	477
609	609
610	610
611	611
622	622
630	630
635	635
640	640
645	645
650	650
651	651
653	653
670	840
690	571
691	572
720	820
721	821
722	822
760	830
761	831
810	810
811	811
850	852
new course	652
new course	654
new course	655
new course	841
new course	842
new course	850
new course	851

## SOCIAL WORK

Old	New
new course	423
new course	425
new course	427
new course	507
511	340
599	323
600	325
601	327
627	503
637	505
675	489
679	509
699	493
701	520
705	530
706	532
708	534
709	522
712	603
713	550
714	552
720	540
730	562
731	564
763	570
764	572
775	585
801	640
802	694
823	554
824	650
826	652
837	662
843	526
851	624
857	840
858	841
859	842
862	630
865	574
866	670
867	672
870	600
875	685
881	660
899	899
950	999

## SERBO-CROATIAN

Old	New
601	601
602	602
603	603
604	604
605	605
606	606

SLAVIC  
LANGUAGES AND  
LITERATURE

Old	New
530	230
617	617
618	618
701	693
730	860
731	861
732	862
new course	783
830	875
new course	870
new course	871

## SOCIOLOGY

Old	New
401	101
402	202
407	220
505	290
506	280
507	201
510	204
518	206
520	330
530	250
562	207
600	430



601	432	613	723
604	480	614	621
612	464	617	607
614	590	620	609
620	208	631	622
621	403	637	626
622	470	638	627
623	405	639	628
624	509	640	629
625	410	641	630
626	411	645	631
627	608	701	693
629	680	705	783
630	650	729	811
638	395	730	820
643	661	731	885
644	462	805	812
645	465	806	813
648	467	816	831
650	440	817	832
660	488	818	833
663	401	821	821
668	687	880	886
676	463	950	999
677	560	new course	572
678	492	new course	573
680	434	new course	794
700	693	new course	112
700 A	693.01	new course	571
700 B	693.02		
700 C	693.03		
700 D	693.04		
700 E	693.05		
700 F	693.06		
700 G	693.07		
700 H	693.08		
700 I	693.09		
700 J	693.10		
700 K	693.11		
700 L	693.12		
706	752		
707	704		
714	894		
725	615		
808	859		
861	868		
864	818		
865	891		
899	899		
900	895		
950	999		
new course	523		
new course	666		
new course	805		

SPEECH

Old	New
401	105
402	110
405	035
410	040 (.01-.05)
416	201
417	135
425	115
430	165
470	305
502	217
504	235
505	221
506	225
509	120
511	125
521	280
560	229
580	240
585	245
590	250
A	205
B	265
601	505
617	852
626	780
631	671
632	672
633	673
651	770
677	440
678	856
682	540
683	632
688	636
689	644
690	648
693	745
694	550
695	640
696	652
697	656
698	755
700	693
705	890

SPANISH

Old	New
401	101
402	102
403	103
404	104
410	105
415	162
416	163
517	421
518	401
519	404
521	402
522	403
531	422
532	423
570	271
605	605
607	623
608	624
610	625
611	721
612	722

735	875
743	565
745	865
766	725
775	735
778	832
781	840
785	844
820	811
840	970
860	821
877	848
880	950
881	826
899	899
950	999
new course	209
new course	213
new course	270
new course	275
new course	285
new course	315
new course	325
new course	365
new course	410
new course	420
new course	465
new course	570
new course	515
new course	520
new course	525
new course	611
new course	616
new course	621
new course	626
new course	705
new course	715
new course	783
new course	794
new course	801
new course	806
new course	816
new course	836
new course	870
new course	880
new course	894
new course	940

SURGERY

Old	New
715	715
736	736
new course	760
793	793
793 A	793.01
793 B	793.02
793 C	793.03
793 D	793.04
793 E	793.05
793 F	793.06
793 G	793.07
793H	793.08
new course	794
794 A	794.01
794 B	794.02
794 C	794.03
794 D	794.04
794 E	794.05
794 F	794.06
794 G	794.07
794 H	794.08
794 I	794.09
794 J	794.10
794 K	794.11
794 L	794.12
794 M	794.13
798	798

799	799
800	850
950	999

VETERINARY ANATOMY

Old	New
451	100
610	410
611	411
616	430
617	431
618	420
620	510
701	693
751	801
755	601
950	999
new course	810
new course	700

VETERINARY CLINICS

Old	New
721	510
722	510
723	510
724	511
725	512

VETERINARY MEDICINE

Old	New
620	510
701	693
719	600
720	600
730	520
731	521
732	522
735	530
736	531
738	540
740	532
750	610
950	999
new course	720
new course	721
new course	620
new course	621

VETERINARY PARASITOLOGY

Old	New
623	610
640	410
642	411
646	412
701	693
827	850
950	999

VETERINARY PATHOLOGY

Old	New
610	625
621	510
622	511
701	693
732	610
733	512
776	710
778	715
786	720
807	850
950	999

VETERINARY PHYSIOLOGY AND PHARMACOLOGY

Old	New
516	210
517	211
610	530
611	531
622	532
630	630
632	632
701	693
950	999
new course	780
new course	790
new course	791
new course	792
new course	799

VETERINARY PREVENTIVE MEDICINE

Old	New
452	200
453	201
620	510
701	693
730	785
740	610
742	512
745	511
750	616
800	850
810	810
950	999

VETERINARY SURGERY AND RADIOLOGY

Old	New
623	510
701	693
731	520
732	530
733	531
741	532
950	999

<b>WELDING</b>		740	588	new course	705	610	610	654	624
<b>ENGINEERING</b>		741	611	new course	755	620	620	656	622
		742	612			623	653	657	500
Old	New	743	720			624	621	658	211
415	240	744	721			629	625	701	693
449	489	745	722			631	611	701	694
610	430	748	784	<b>ZOOLOGY</b>		632	630	832	811
640	488	754	799			633	612	833	812
646	640	841	884	Old	New	634	623	896	896
649	589	950	999			636	650	897	897
701	610	new course	401	404	101	637	654	900	880
702	602	new course	630	508	220	640	661	900	881
703	631	new course	680	605	640	641	662	new course	841
739	501	new course	704	607	660	642	651	new course	851
						652	652	950	999



## Academic Planning Guide

The material presented in this Academic Planning Guide is aid to the student and his adviser in planning the student's academic program for the coming year. Courses shown are those that will be offered each quarter during the 1967-68 academic year. The student will find listed the times at which courses are expected to be offered and the instructors who are expected to teach them.

This listing is not to be used by the student in scheduling classes for each quarter. Instead, a quarterly Master Schedule will be used in scheduling. The quarterly Master Schedule will be prepared and distributed, along with schedule cards, to all students prior to the beginning of each quarter.

For Autumn Quarter 1967 registration, the quarterly Master Schedule and schedule cards will be mailed to the home address of those students not attending classes during the Summer Quarter. For enrolled students, registration materials will be available in the student's college office the following dates:

Autumn Quarter 1967	August 1, 1967
Winter Quarter 1968	October 30, 1967
Spring Quarter 1968	January 31, 1968
Summer Quarter 1968	May 3, 1968

Instructions for registering and registration deadlines will be included in the appropriate quarterly Master Schedule and supplemented by announcements appearing in the student newspaper, the Lantern.

Adviser Approval Forms are included at the end of this Academic Planning Guide to assist those students required to have an adviser's signed approval of courses scheduled. The student should use Adviser Approval Form to obtain adviser approval of his Autumn Quarter schedule in advance of the summer vacation period. During Summer Quarter, when the student or his adviser may be away from campus, securing such approval could be difficult or impossible.

It is hoped that this new service of providing an Academic Planning Guide as a part of the Academic Policies and Course Offerings volume of the catalogue series will assist students in planning their academic programs for the coming year.

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## EXPLANATORY NOTES

The information listed in the Academic Planning Guide is organized in alphabetical order by department. Within each department listing are the course offerings for each quarter, Autumn 1967 through Spring 1968 (Summer 1967 courses appear in the 1966-67 Time Schedule).

### The course offering listings indicate by column:

Course Number (NO), Credit Hours (CRDT), Section Descriptors (SEC), Course Meeting Days (DAY) and time (TIME), and Instructor if assigned. Class sections which meet during one normal class period (48-minute period starting on the hour) have only the starting time indicated. Both the beginning and ending times are indicated for sections which either begin or end outside one normal class period. Classes meeting 7:00 p.m. and after have a "P" listed following the meeting time to distinguish them from a.m. classes. An upper case letter following the course number refers to the lower case letters in the Courses of Instruction.

### The following codes are used as section descriptors:

Code	Descriptor
B	Laboratory
C	Conference
D	Lecture/Discussion
F	Field Trip
I	Individual Study/Research
K	Clinical Experience
L	Lecture
R	Recitation
S	Seminar
W	Work Experience/Student Teaching

The codes listed below indicate any special scheduling restrictions that apply to a section. The codes, listed in the third column position of the Section Descriptors (SEC) when they apply, are as follows:

Code	Scheduling Restriction
1	Honors section
2	Enrollment limited to department majors
3	Enrollment limited to graduate students
4	Enrollment limited to new OSU students
5	Enrollment limited to part-time students
6	Enrollment limited to transfer students
7	Enrollment limited to Engineering students
8	Enrollment limited to Veterinary Medicine Students

The student is responsible for meeting all prerequisites for each course scheduled as specified in the Courses of Instruction. The Courses of Instruction section of this book should be consulted for each course being considered to insure that the student will have met all of the required prerequisites for each course prior to scheduling. No attempt has been made to list course prerequisites in the Academic Planning Guide.



# Accounting

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

201	5	L	MTWTF	11	
211	5	L	MTWTF	8	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	4	
		L	M T	7 - 910P	
212	5	L	MTWTF	9	
		L	MTWTF	2	
221	5	L	M W F	8	
		B	T T	8 -10	
		L	M W F	11	
		B	T T	10 -12	
		L	M W F	1	
221		B	T T	1 - 3	
415	5	L	MTWTF	3	
523	4	L	MT TF	9	
		L	MT TF	10	
524	4	L	MT TF	2	
525	4	L	MT TF	9	
		L	MT TF	11	
526	4	L	T T	7 - 845	
531	3	L	M F	2	
		B	W	2 - 4	
		LB	T T	7 - 915	
535	4	D	MT TF	10	
536	3	L	M W F	9	
627	5	L	MTWTF	3	
628	4	L	M W	9 -11	
689	15	W		ARR	
693	2-05	C		ARR	
711	3	L	M W F	11	
811	3	D	T T	1 - 230	
		D	T T	7 - 815P	
831	3	S	M W F	11	
846	3	S	T T	730- 845P	
847	3	S	T T	730- 845P	
861	3	S		ARR	
999	ARR	I		ARR	

## WINTER QUARTER

211	5	L	MTWTF	9	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	2	
		L	T T	7 - 910P	
212	5	L	MTWTF	8	
		L	MTWTF	10	
		L	MTWTF	1	
		L	MTWTF	3	
		L	M T	7 - 910P	
523	4	L	MT TF	10	
		L	MT TF	11	
524	4	L	MT TF	9	
		L	MT TF	10	
525	4	L	MT TF	1	
526	4	L	MT TF	1	
		L	MT TF	2	

531	3	L	M F	2	
		B	W	1 - 3	
627	5	L	MTWTF	3	
		L	T T	7 - 910P	
628	4	L	M W	9 -11	
689	15	W		ARR	
693	2-05	C		ARR	
712	3	L	M W F	3	
844	3	S	T T	730- 845P	
845	3	S	T	7 - 930P	
851	3	S		ARR	
854	3	S	M W F	10	
861	3	S		ARR	
999		I		ARR	

## SPRING QUARTER

201	5	L	MTWTF	3	
211	5	L	MTWTF	9	
		L	MTWTF	1	
		L	MTWTF	4	
212	5	L	MTWTF	8	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	2	
		L	M T	7 - 910P	
221	5	L	M W F	8	
		B	T T	8 -10	
		L	M W F	11	
		B	T T	10 -12	
		L	M W F	1	
		B	T T	1 - 3	
		LB	T T	7 - 950P	
415	5	L	MTWTF	1	
523	4	L	MT TF	11	
524	4	L	MT TF	10	
		L	MT TF	11	
525	4	L	MT TF	9	
		L	MT TF	1	
526	4	L	MT TF	9	
531	3	L	M F	2	
		B	W	2 - 4	
627	5	L	MTWTF	2	
628	4	L	M W	2 - 4	
		L	M W	9 -11	
		L	T T	7 - 845P	
689	15	W		ARR	
693	2-05	C		ARR	
811	3	D	T T	1 - 230	
		D	T T	7 - 815P	
831	3	S	M W F	10	
846	3	S	T T	7 - 845P	
847	3	S	T T	7 - 845P	
852	3	S	M W F	11	
853	3	S		ARR	
861	3	S		ARR	

# Aeronautical and Astronautical Engineering

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

40n	4	L	MT TF	9	
		L	MT TF	2	
594	3-05	L		ARR	
60n	4	L	MT TF	10	
		L	MT TF	1	
606	4	L	MT TF	11	
		L	MT TF	3	
693	2-10	C		ARR	
694	2-10	L		ARR	
695	1	S	M	10	
		S	F	10	
71n	4	L	T T	8	
		B	T T	9	-12
		L	T T	1	
		B	T T	2	- 5
745	4	L	MT TF	9	
		L	MT TF	1	
75n	4	L	MT TF	8	
		L	MT TF	3	
77n	4	L	MT TF	11	
		L	MT TF	2	
805	3	C		ARR	
81n	3	C		ARR	
82n	3	C		ARR	
825	3	C		ARR	
84n	3	C		ARR	
841	3	C		ARR	
842	3	C		ARR	
85n	3	C		ARR	
851	3	C		ARR	
852	3	C		ARR	
86n	3	C		ARR	
861	3	C		ARR	
862	3	C		ARR	
87n	3	C		ARR	
871	3	C		ARR	
872	3	C		ARR	
88n	1	S	T	4	
889	2-05	C		ARR	
999		I		ARR	

## WINTER QUARTER

401	4	L	MT TF	9	
		L	MT TF	3	
594	3-05	L		ARR	
603	4	L	MT TF	10	
		L	MT TF	1	
64n	4	L	MT TF	9	
		L	MT TF	2	

66n	4	L	MT TF	11	
		L	MT TF	3	
693	2-10	C		ARR	
694	2-10	L		ARR	
711	2-04	B		ARR	
72n	4	L	MT TF	3	
725	4	L	MT TF	8	
		L	MT TF	2	
746	4	L	MT TF	4	
751	4	L	MT TF	4	
76n	4	L	MT TF	11	
		L	MT TF	1	
775	4	L	MT TF	10	
81n	3	C		ARR	
82n	3	C		ARR	
825	3	C		ARR	
84n	3	C		ARR	
841	3	C		ARR	
842	3	C		ARR	
85n	3	C		ARR	
851	3	C		ARR	
852	3	C		ARR	
86n	3	C		ARR	
861	3	C		ARR	
862	3	C		ARR	
87n	3	C		ARR	
871	3	C		ARR	
872	3	C		ARR	
88n	1	S	T	4	
889	2-05	C		ARR	
999		I		ARR	

## SPRING QUARTER

50n	4	L	MT TF	9	
		L	MT TF	3	
505	4	L	MT TF	8	
		L	MT TF	2	
594	3-05	L		ARR	
62n	4	L	MT TF	8	
		L	MT TF	2	
641	4	L	T T	8	
		B	T T	9	-12
		L	T T	1	
		B	T T	2	- 5
661	4	L	MT TF	11	
		L	MT TF	3	
693	2-10	C		ARR	
694	2-10	L		ARR	
712	2-04	B		ARR	
715	4	L	W S	8	
		B	W S	9	-12
726	4	L	MT TF	11	
74n	4	L	MT TF	2	
761	4	L	MT TF	9	



771	4	L	MT TF	10	
		L	MT TF	1	
776	4	L	MT TF	3	
81n	3	C		ARR	
82n	3	C		ARR	
825	3	C		ARR	
84n	3	C		ARR	
841	3	C		ARR	
842	3	C		ARR	
85n	3	C		ARR	
851	3	C		ARR	
852	3	C		ARR	
86n	3	C		ARR	
861	3	C		ARR	
862	3	C		ARR	
868	3	C		ARR	
87n	3	C		ARR	
871	3	C		ARR	
872	3	C		ARR	
88n	1	S	T	4	
889	2-05	C		ARR	
999		I		ARR	

## Agricultural Economics

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

10n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	2	
		D	MTWTF	3	
41n	5	D	M WTF	8	
		B	T	8	-10
		D	M WTF	2	
		B	T	2	- 4
42n	5	D	MTWTF	10	
		D	MTWTF	1	
516	5	D	MTWTF	11	BAILEY
523	3	D	M W F	9	
53n	5	D	MTWTF	9	MCCORMICK
532	3	D	M W F	8	ADAMS
54n	3	D	M W F	8	INGRAHAM
541	5	D	MTWTF	10	INGRAHAM
593	2-05	C		ARR	
594	1	D		ARR	
61n	5	D	MTW F	10	
		B	T	10	-12
		B	T	2	- 4
695	3	S		ARR	
80n	3	D	M W F	3	

805	3	D	M W F	2	
807	2-04	S		ARR	
816	2-04	S		ARR	
83n	4	D	T T	8	-10
833	2-04	S		ARR	
834	2-04	S		ARR	
883	2-05	C		ARR	
897	1	S		ARR	DAMBACH
899	1-05	S		ARR	
995	2+04	S		ARR	
999		I		ARR	

### WINTER QUARTER

10n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	2	
		D	MTWTF	3	
41n	5	D	M WTF	8	
		S	T	8	-10
412	5	D	T T	10	-12
42n	5	D	MTWTF	9	
		D	MTWTF	1	
502	3	D	M W F	11	HIMES
522	3	D	M W F	11	STOUT
526	3	D	M W F	3	HAHN
53n	5	D	MTWTF	10	MCCORMICK
531	3	D	M W F	9	
593	2-05	C		ARR	
594	1	D		ARR	
632	3	D	M W F	11	BAILEY JONES
68n	4	D	T T	1	- 3
80n	3	D	M W F	3	
802	3	D	M W F	1	WALKER
81n	3	D	M W F	1	SHAUDYS
811	2-04	S		ARR	
82n	3	D	M W F	2	
821	2-04	S		ARR	
883	2-05	C		ARR	
897	1	S		ARR	
899	1-05	S		ARR	
995	2+04	S		ARR	
999		I		ARR	

### SPRING QUARTER

10n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	2	
		D	MTWTF	3	
41n	5	D	M WTF	8	
		B	T	8	-10
		D	M WTF	2	
		B	T	2	- 4
411	5	D	M W F	3	- 5
412	5	D	T T	10	-12

Agricultural Economics (Cont'd)

420	5	D	MTWTF	9	
		D	MTWTF	2	
502	3	D	M W F	9	HIMES
516	5	D	MTWTF	9	BAILEY JONES
518	3	D	MT T	3	R H BAKER
521	5	D	MTWTF	8	R L BAKER
528	3	D	M W F	11	CRAVENS
531	3	D	M W F	11	
532	3	D	M W F	8	ADAMS
534	3	D	M W F	2	SHERMAN
540	3	D	M W F	8	INGRAHAM
541	5	D	MTWTF	10	INGRAHAM
593	2-05	C		ARR	
594	1	D		ARR	
620	4	D	MTWT	3	
716	3	D	M W F	11	
740	4	D	MTWT	10	MARION
801	3	S		ARR	
803	2	S		ARR	
804	3	S		ARR	
805	3	D	M W F	2	
806	3	D	M W F	3	
831	3	D	M W F	10	
832	2-04	S		ARR	
883	2-05	C		ARR	
897	1	S		ARR	DAMBACH
899	1-05	S		ARR	
995	2-04	S		ARR	
999		I		ARR	

641	3	D		ARR	WOODIN
684	3-05	K		ARR	GUILER
693	2-03	C		ARR	
744	3	D		ARR	F MCCORMICK
794	3-05	D		ARR	
795	2-03	S	T	8 -10	BENDER
810	3	D	T	4 - 630	WOODIN
811	3	D	M T	4 - 630 3 - 5	R MCCORMICK TAYLOR
889	3	C		ARR	
899	2-03	S		ARR	
999		I		ARR	

WINTER QUARTER

200	3	D	M W F	10	BOUCHER
		D	M W F	1	BOUCHER
230	5	D	MTW F	9	WOLF
230	3	B	T	1 - 5	WOLF
380-01	2-03	K		ARR	WILSON
380-02	2-03	K		ARR	CUNNINGHAM
380-03	2-03	K		ARR	WILSON
581	5	K		ARR	WILSON
582	5	K		ARR	WILSON
583	5	K		ARR	WILSON
631	3	D	T T	3 - 430	BENDER
684	3-05	K		ARR	GUILER
693	2-03	C		ARR	
743	3	D		ARR	JOHNSON
790-01	4	D		8 -12	CUNNINGHAM
794	3-05	D		ARR	
795	2-03	S		ARR	WOODIN
823	3	D	M T	4 - 630 3 - 5	R MCCORMICK TAYLOR
885	3	D	W	4 - 630	CHRISTENSEN
889	3	C		ARR	
899	2-03	S		ARR	
999		I		ARR	

Agricultural Education

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

200	3	D	M W F	10	BOUCHER
		D	M W F	1	BOUCHER
230	5	D	MTW F	9	WOLF
		B	T	1 - 5	WOLF
380-01	2-03	K		ARR	WILSON
380-02	2-03	K		ARR	CUNNINGHAM
380-03	2-03	K		ARR	WILSON
581	5	K		ARR	WILSON
582	5	K		ARR	WILSON
583	5	K		ARR	WILSON
622	3	D	W	6 - 830P	WOLF
		D	ARR		BENDER

SPRING QUARTER

200	3	D	M W F	10	BOUCHER
230	5	D	MTW F	9	WOLF
		D	MTW F	10	WOLF
230		B	T	1 - 5	WOLF
380-01	3-05	K		ARR	WILSON
380-02	3-05	K		ARR	CUNNINGHAM
380-03	3-05	K		ARR	WILSON
420	3	D	M W F	3	CUNNINGHAM
581	5	K		ARR	CUNNINGHAM
582	5	K		ARR	WILSON
583	5	K		ARR	CUNNINGHAM
640	3	D	T	3 - 530 530- 800P	BOUCHER GUILER
		D	T		



642	3	D D	T	530- 800P ARR	F MCCORMICK BENDER
684	3+05	K		ARR	GUILER
693	2+03	C		ARR	
770	3	D D	T	4 - 630 ARR	WILSON WOODIN
794	3+05	D		ARR	
795	2+03	S	T	8 -10	
889	3	C		ARR	
899	2+03	S		ARR	
999		I		ARR	

411	5	L B	M W F T T	8 8 -10	BLAISDELL BLAISDELL
473	4	D	MT TF	8	SCHWAB
533	5	D B	M W F T T	1 1 - 3	HUBER HUBER
593	3-05	C		ARR	
693	3+05	C		ARR	
724	5	D	MTWTF	10	HERUM
754	5	D B	M W F T T	8 8 -10	
850	1	S	T	2	
877	3	D		ARR	SCHWAB
897	1	S		ARR	DAMBACH

## Agricultural Engineering

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

220	3	D B B	M W T	10 10 -12 10 -12	HERUM HERUM HERUM
230	3	D B B	M W T F	8 8 -10 8 -10	
240	3	D B D B	M W T F M W T F	11 10 -12 2 1 - 3	JOHNSON JOHNSON JOHNSON JOHNSON
250	3	D B	M W T	8 8 -10	HARKNESS HARKNESS
270	3	D B	W F M	2 2 - 5	SCHWAB SCHWAB
310	5	L B	M W F T T	8 8 -10	BLAISDELL BLAISDELL
403	5	W		ARR	
593	3-05	C		ARR	
675	5	D B	M W F T T	9 12 - 3	SCHWAB SCHWAB
693	3+05	C		ARR	
723	5	D	MTWTF	8	BARRE
753	4	D B	M W F T	3 3 - 6	HUBER HUBER
794	3	L	M W F	2	
850	1	S	T	2	
858	5	L		ARR	BRAZEE
897	1	S		ARR	
999		I		ARR	

### WINTER QUARTER

221	3	D B	M W T	2 1 - 3	BARRE BARRE
230	3	D B B	M W T F	3 3 - 5 3 - 5	
231	3	D B	M W T	1 1 - 3	HARKNESS HARKNESS
240	3	B	MT F	10 -12	JOHNSON

### SPRING QUARTER

230	3	D B B	M W T F	8 8 -10 8 -10	
240	3	D B D B	M W T F M W T F	11 10 -12 2 1 - 3	JOHNSON JOHNSON JOHNSON JOHNSON
250	3	D B	M W T	10 10 -12	HUBER HUBER
270	3	D B B	W F M T	2 2 - 5 2 - 5	TAIGANIDES TAIGANIDES TAIGANIDES
474	4	D B	M W F T	9 9 -12	TAIGANIDES TAIGANIDES
500	1	L	M	4	
593	3-05	C		ARR	
611	5	L B	M W F T T	8 8 -10	BLAISDELL BLAISDELL
676	4	D B	M W F T	3 3 - 5	HARKNESS HARKNESS
693	3+05	C		ARR	
725	4	D B	M W F T	1 1 - 4	BARRE BARRE
786	5	D B	M W F T T	8 8 -10	
794	3	L	M W F	9	
850	1	S	T	2	
857	3	L		ARR	
897	1	S		ARR	
999		I		ARR	

## Agronomy

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

200	5	L L L L	MTWTF MTWTF MTWTF MTWTF	9 10 11 1	HERR ALBAN HERR GEISMAN
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**Agronomy (Cont'd)**

24n	5	L	MT TF	8	HIMES
		L	MT TF	10	HIMES
		B	T	3 - 5	
		B	W	8 -10	
		B	W	10 -12	
		B	W	3 - 5	
411	4	L	M W F	1	RAY
		B	T	1 - 3	RAY
		B	T	1 - 3	RAY
412	4	D	M W F	8	ANDERSON
		D	M W F	9	ANDERSON
		B	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	
422	4	L	M W F	2	HERR
		B	M	3 - 5	
		B	W	3 - 5	
441	4	L	M W F	1	
		F	S ARR		
442	3	L	M W F	9	SHOENAKER
543	3	L	M W F	10	ARSCOTT
594	3+05 C			ARR	
595	2	S 2	T T	3	
621	3	L	M W F	10	
67n	3	L	M W F	3	ARSCOTT
671	5	L	M W F	11	TAYLOR
		B	T T	10 -12	
693	3+05 C			ARR	
88n	2	S	M	4	
884	3	C		ARR	
885	S			ARR	MCLEAN
999	C			ARR	

**WINTER QUARTER**

20n	5	L	MTWTF	9	GEISMAN
		L	MTWTF	10	HARTMAN
		L	MTWTF	11	HERR
		L	M W F	3 - 430	HERR
24n	5	L	MT TF	8	HIMES
		L	MT TF	10	HIMES
		B	T	3 - 5	
		B	W	8 -10	
		B	W	10 -12	
		B	W	3 - 5	
411	4	L	M W F	1	RAY
		B	T	1 - 3	RAY
		B	T	1 - 3	RAY
412	4	D	M W F	8	ANDERSON
		D	M W F	11	ANDERSON
		B	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	
51n	4	L	MT TF	11	ARSCOTT
53n	4	L	M W F	9	SMITH
		B	W	3 - 5	
594	3+05 C			ARR	
595	2	S 2	T T	3	
621	3	L	M W F	10	
65n	5	D		ARR	WILDING
		B		ARR	
672	5	L	M W F	9	MCLEAN
		B	T T	1 - 3	MCLEAN

693	3+05 C			ARR	
786	3	L		ARR	FRANKLIN
822	5	D	TWTF	4	BENDIXEN
		B		ARR	BENDIXEN
872	5	L	M W F	10	MCLEAN
		B		ARR	MCLEAN
88n	2	S	M	4	
884	3	C		ARR	
887	5	L	MTWTF	8	SMITH
999	C			ARR	

**SPRING QUARTER**

20n	5	L	MTWTF	9	HERR
		L	MTWTF	10	ALBAN
		L	MTWTF	11	HERR
		L	MTWTF	1	HARTMAN
24n	5	L	MT TF	8	HIMES
		L	MT TF	10	HIMES
		B	T	3 - 5	
		B	W	8 -10	
		B	W	10 -12	
		B	W	3 - 5	
412	4	D	M W F	9	ANDERSON
		D	M W F	11	ANDERSON
		B	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	
413	4	L	MT TF	10	MILLER
422	4	L	M W F	2	HERR
		B	M	3 - 5	
		B	W	3 - 5	
55n	5	L	M W F	1	HALL
		F	ARR		
		B	T	1 - 3	HALL
		B	T	1 - 3	HALL
594	3+05 C			ARR	
595	2	S 2	T T	3	
602	3	L	M W F	3	BENDIXEN
612	4	L	MT TF	8	ANDERSON
623	4	L	MT TF	11	MILLER
66n	5	L	M W F	2	MILLER
		B	T T	2 - 4	
693	3+05 C			ARR	
86n	3	L		ARR	MILLER
88n	2	S	M	4	
884	3	C		ARR	
999	C			ARR	

**Air Science**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	2	D	M	10	
		D	M	11	
		D	M	1	
		D	M	2	
		D	M	3	
		D	T	8	



		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	T	12
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
201	2	D	T	12
		D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	W	8
		D	W	9
		D	W	10
		D	W	11
		D	W	12
		D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	T	5
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
301	3	S	TWT	8
		S	TWT	9
		S	TWT	10
		S	TWT	11
		S	TWT	1
		S	TWT	2
		S	TWT	3
		S	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
401	3	S	TWT	8
		S	TWT	9
		S	TWT	10
		S	TWT	11
		S	TWT	1
		S	TWT	2
		S	TWT	3
		S	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
411	1	D	MTWT	11
WINTER QUARTER				
102	2	D	M	10
		D	M	11
		D	M	1
		D	M	2
		D	M	3
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	T	12
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4

202	2	D	T	12
		D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	W	8
		D	W	9
		D	W	10
		D	W	11
		D	W	12
		D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	T	5
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
302	3	S	TWT	8
		S	TWT	9
		S	TWT	10
		S	TWT	11
		S	TWT	1
		S	TWT	2
		S	TWT	3
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
402	3	S	TWT	8
		S	TWT	9
		S	TWT	10
		S	TWT	11
		S	TWT	1
		S	TWT	2
		S	TWT	3
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4
411	1	D	MTWT	11
SPRING QUARTER				
103	2	D	M	10
		D	M	11
		D	M	1
		D	M	2
		D	M	3
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	T	12
		B	W	9
		B	W	12
		B	W	4
		B	T	9
		B	T	12
		B	T	4

## Air Science (Cont'd)

203	2	D	T	12	
		D	T	1	
		D	T	2	
		D	T	3	
		D	T	4	
		D	W	8	
		D	W	9	
		D	W	10	
		D	W	11	
		D	W	12	
		D	T	1	
		D	T	2	
		D	T	3	
		D	T	4	
		D	T	5	
		B	W	9	
		B	W	12	
		B	W	4	
		B	T	9	
		B	T	12	
		B	T	4	
303	3	S	TWT	8	
		S	TWT	9	
		S	TWT	10	
		S	TWT	11	
		S	TWT	1	
		S	TWT	2	
		S	TWT	3	
		B	W	9	
		B	W	12	
		B	W	4	
		B	T	9	
		B	T	12	
		B	T	4	
403	3	S	TWT	8	
		S	TWT	9	
		S	TWT	10	
		S	TWT	1	
		S	TWT	2	
		S	TWT	3	
		B	W	9	
		B	W	12	
		B	W	4	
		B	T	9	
		B	T	12	
		B	T	4	
411	1	D	MTWT	11	

## Anatomy

No.	Crd't	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
20n	6	L	M W F	9 -10	APLINGTON
		B	M W F	10 -12	
		B	M W F	1 - 3	
201	5	L	T T	8	
		B	T T	9 -12	
		B	T T	1 - 4	
615	2	LB		ARR	WESTON
621	8	LB		ARR	GAUGHRAN
624	3	LB		ARR	ACKERMAN
637	3	L	W F	10	DELPHIA
		B	T	1	
		B	T	1	
		B	T T	2 - 4	
64n	6	L	M W F	1	VERNALL
		B	M W F	2 - 5	
641	1	L	T	1	RUSSELL
642	2	LB		ARR	
693	2-05	W		ARR	

793	3+05	W		ARR	
793	6	W		ARR	
815	4	LB		ARR	
821	6	LB		ARR	
824	5	LB		ARR	
85n	1	S	W	12	
999		W		ARR	

## WINTER QUARTER

20n	6	L	M W F	9	APLINGTON
		B	M W F	10 -12	
		B	M W F	1 - 3	
617	2	LB		ARR	
622	4	LCB	M W F	8	GAUGHRAN
624	3	LB		ARR	
643	3	LB		ARR	
638.A	5	LB		ARR	EGLITIS
639.B	7	L	M W F	1	RUSSELL HALL
		L	F	10	
		B	M W F	2 - 5	
643	3	I		ARR	
693	2-05	W		ARR	
783	6	W		ARR	
818	4	L	T T	1 - 3	HALL
821	6	I		ARR	
822	6	I		ARR	
824	5	I		ARR	
85n	1	S	W	12	
999		W		ARR	

## SPRING QUARTER

20n	6	L	W F	9	APLINGTON
		L	ARR	9	
		B	M W F	10 -12	
		B	M W F	1 - 3	
622	4	LB		ARR	GAUGHRAN
625	7	LB		ARR	EGLITIS
638.B	5	LB		ARR	EGLITIS
639.A	7	L	M W F	1	RUSSELL
		L	F	9	
		B	M W F	2 - 5	
643	3	LB		ARR	HUMBERTSON
		I		ARR	
693	2-05	W		ARR	
728	2-04	W		ARR	
728	6	W		ARR	
793	3+05	W		ARR	
793	6	W		ARR	
821	6	I		ARR	
825	5	I		ARR	
826	5	I		ARR	
85n	1	S	W	12	
999		W		ARR	



# Animal Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
10n	5	L	MTWTF	9	PLIMPTON
		L	MTWTF	2	
20n	5	L	M W F	8	KUNKLE
		B	T T	8 -10	
		B	T T	10 -12	
		B	M W F	1	
		B	T T	1 - 3	
		B	T T	3 - 5	
25n	3	D	M W F	10 -12	NABER NABER TYZNIK TYZNIK CLINE CLINE
43n	5	L	MTWT	9	
		B	F	8 -10	
		L	MTWT	11	
		B	F	10 -12	
		L	MTWT	3	
		B	F	3 - 5	
45n	5	L	M W F	1	CAHILL CAHILL
		B	T T	1 - 4	
542	5	L	T T F	10	WILSON WILSON
		B	M W	10 -12	
543	5	L	M W F	10	WILSON WILSON
		B	T T	10 -12	
593	3+05	I		ARR	
594	3+05	I		ARR	
63n	5	D	MT T F	10	CLINE CLINE
		B		ARR	
631	5	D	MT T F	1	TYZNIK TYZNIK
		B		ARR	
693	3+05	I		ARR	
694	3+05	I		ARR	
80n	1	S	M	4	
83n	3	D	M W F	2	CONRAD
999		I		ARR	
WINTER QUARTER					
10n	5	L	MTWTF	10	
		L	MTWTF	11	
20n	5	L	M W F	8	
		B	T T	8 -10	
		L	M W F	1	
		B	T T	1 - 3	
25n	3	D	M W F	10 -12	KUNKLE
43n	5	L	MTWT	9	
		B	F	8 -10	
		L	MTWT	11	
		B	F	10 -12	
		L	MTWT	3	
		B	F	3 - 5	
44n	5	L	T T F	10	
		B	M W	10 -12	
45n	5	L	M W F	1	CAHILL CAHILL
		B	T T	1 - 4	
541	5	L	M W F	3	
		B	T T	3 - 5	
544	5	L	M W F	1	JUDY JUDY
		B	T T	1 - 3	
593	3+05	I		ARR	
594	3+05	I		ARR	
63n	5	D	MT T F	2	NABER NABER
		B		ARR	
631	5	D	MT T F	8	TYZNIK TYZNIK
		B		ARR	

65n	3	D	T T	10 -12	TYZNIK
693	3+05	I		ARR	
694	3+05	I		ARR	
80n	1	S	M	4	
83n+02	3	D	M W F	1	CLINE
999		I		ARR	
SPRING QUARTER					
10n	5	L	MTWTF	12	
		L	MTWTF	3	
20n	5	L	M W F	8	KUNKLE
		L	T T	8 -10	
		B	M W F	8	
		L	T T	10 -12	
		B	M W F	1	
		B	T T	1 - 3	
25n	3	D	M W F	10 -12	TYZNIK TYZNIK TYZNIK TYZNIK CLINE CLINE
43n	5	L	TWTF	9	
		B	M	8 -10	
		L	TWTF	11	
		B	M	10 -12	
		L	TWTF	3	
		B	M	3 - 5	
44n	5	L	T T F	11	
		B	M W	10 -12	
45n	5	L	M W F	1	CAHILL CAHILL
		B	T T	1 - 4	
451	3	D	M W F	3 - 5	ALTHOUSE
50n	5	D	MTWTF	8 -10	WILSON
542	5	L	M W F	1	WILSON WILSON
		B	T T	1 - 3	
543	5	L	M W F	10	WILSON WILSON
		B	T T	10 -12	
544	5	L	M W F	3	JUDY JUDY
		B	T T	3 - 5	
593	3+05	I		ARR	
594	3+05	I		ARR	
63n	5	D	MT T F	8	CLINE CLINE
		B		ARR	
631	5	D	MT T F	2	STAUBUS STAUBUS
		B		ARR	
693	3+05	I		ARR	
694	3+05	I		ARR	
80n	1	S	M	4	
83n	3	D	M W F	11	NABER
999		I		ARR	

# Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
21n	5	L	M W F	3	WILLIAMS
		R	T T	1	
		R	T T	2	
		R	T T	3	
251	5	D	MTWTF	12	ESTEL

Anthropology (Cont'd)

261	5	D	MTWTF	8		
		D	M W F	9	ESTEL	
		R	T T	8		
		R	T T	9		
		R	T T	10		
		R	T T	11		
		D	MTWTF	2		
		D	T T	7	- 910P	
401	3	D	M W F	10		
410	4	D	MTWT	9	DENTAN	
415	4	D	MTWT	11	BOUGUIGNON	
460	4	D	MTWT	1		
640	3	C		ARR	ESTEL	
693	1-04	C		ARR		
803	3	S	T	730- 930P	WILLIAMS	
899	1-05	S		ARR		
999	1			ARR		
WINTER QUARTER						
210	5	L	M W F	3	WILLIAMS	
		R	T T	1		
		R	T T	2		
		R	T T	3		
251	5	D	MTWTF	12	ESTEL	
261	5	L	M W F	9	ESTEL	
		R	T T	10		
		R	T T	11		
		R	T T	11		
		D	MTWTF	2		
		D	MTWTF	3		
		D	M W	7	- 910P	
414	4	D	MTWT	10	DENTAN	
430	4	D	MTWT	3	CALLAHAN	
450	4	D	MTWT	11		
454	2	D	F	11	ARR	
		B				
570	4	D	MTWT	2	DENTAN	
610	4	D	MTWT	4	BOURGUIGNON	
693	1-04	C		ARR		
803	3	S	T	730- 930P		
899	1-05	C		ARR		
999	1			ARR		
SPRING QUARTER						
210	5	L	M W F	3	WILLIAMS	
		R	T T	1		
		R	T T	2		
		R	T T	3		
251	5	D	MTWTF	12	ESTEL	
261	5	L	M W F	9	ESTEL	
		R	T T	10		
		R	T T	11		
		R	T T	11		
		R	T T	1		
		D	MTWTF	10		
		D	MTWTF	2		
412	4	D	MTWT	1	HALL	
416	3	D	M W F	2	BOURGUIGNON	
450	4	D	MTWT	11		
456	2	S	F	11	ARR	
510	4	D	MTWT	9	DENTAN	
662	4	B	S	8 -12	BABY	

693	1-04	C		ARR	
803	3	S	T	730- 930P	
899	1-05	C		ARR	
999	1			ARR	

Architecture

No.	Crd't	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	4	L	M	10	BOWSER
		B	M	11 -12	
		B	TWTF	10 -12	
		L	M	2	BOWSER
		B	M	3 - 4	
		B	TWTF	2 - 4	
211	5	L	M	3	TILLEY
		B	M	1 - 3	
		B	TWTF	1 - 4	
393	1-05	C		ARR	
511	5	L	M	1	CLARK
		B	M	2 - 4	
		B	TWTF	1 - 4	
521	3	L	T	9	DIPNER
		B	M W F	9 -12	
601	3	L	M W F	11	BORCHERS
611	6	L	W	1	PHILLIAN
		B	M F	1 - 5	
		B	T T	1 - 4	
		B	W	2 - 5	
621	4	L	M F	8	WILSON
		B	M W F	9 -11	
661	4	L	T T	8	PASSE
		L	T	9	
		B	T	10 -11	
		B	T	9 -11	
693	1-05	C		ARR	
700	3	L	M W F	9	BORCHERS
711	7	L	M W	4	CODDINGTON
		B	M W	1 - 4	
		B	T T F	1 - 5	
721	5	L	TWT	8	WILSON
		B	T T	9 -12	
751	3	L	M W F	11	CLARK
801	2	S	T T	2	BRINKERS
811	5	B		ARR	BRINKERS
812	5	B		ARR	BRINKERS
871	1-05	C		ARR	
899	1-05	S		ARR	
999		C		ARR	
WINTER QUARTER					
112	4	L	M	10	BOWSER
		B	M	11 -12	
		B	TWTF	10 -12	
		L	M	2	BOWSER
		B	M	3 - 4	
		B	TWTF	2 - 4	
212	5	L	M	3	TILLEY
		B	M	1 - 3	
		B	TWTF	1 - 4	
393	1-05	C		ARR	



512	5	L B B	M M TWTF	1 2 - 4 1 - 4	CLARK
522	3	L B	T M W F	9 9 -12	DIPNER
602	3	L	M W F	11	BORCHERS
612	6	L B B B	W M F T T W	1 1 - 5 1 - 4 2 - 5	PHILLIAN
622	4	L B	M F M W F	8 9 -11	WILSON
662	4	L L B B	T T T T T	8 9 10 -11 9 -11	PASSE
693	1-05	C		ARR	
712	7	L B B	M W M W T TF	4 1 - 4 1 - 5	CODDINGTON
722	5	L B	TWT T T	8	WILSON
752	3	L	M W F	11	CLARK
802	2	S	T T	2	BRINKERS
811	5	B		ARR	BRINKERS
812	5	B		ARR	BRINKERS
871	1-05	C		ARR	
899	1-05	S		ARR	
999		C		ARR	

SPRING QUARTER

113	4	L B B	M M TWTF	10 11 -12 10 -12	BOWSER
213	5	L B B	T T M WTF	3 1 - 3 1 - 4	TILLEY
393	1-05	C		ARR	
513	5	L B B	M M TWTF	1 2 - 4 1 - 4	CLARK
523	3	L B	T M W F	9 9 -12	DIPNER
603	3	L	M W F	11	BORCHERS
613	6	L B B B	W M F T T W	1 1 - 5 1 - 4 2 - 5	PHILLIAN
623	4	L B	M F M W F	8 9 -11	WILSON
663	4	L L B B	T T T T	8 9 10 -11 9 -11	PASSE
693	1-05	C		ARR	
713	10	L B B B	M W M W F M W T TF	4 10 -12 1 - 4 1 - 5	CODDINGTON
723	5	L B	TWT T T	8 9 -12	WILSON
803	2	S		2	BRINKERS
811	5	B		ARR	BRINKERS
812	5	B		ARR	BRINKERS
871	1-05	S		ARR	

899	1-05	S		ARR
999		C		ARR

## Astronomy

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L R B B B	M W F T M M W	9 9 7 8 7	ROARK  P P P
150	5	L L	M W T T	7 - 915P 7 - 915P	MITCHELL
650	3	L	M W F	3	CZYZAK
693	1-15	C		ARR	
801	1	S	T	3 - 5	
841	3	L	T T	1030-12	
851	3	L	T T	1 - 230	
999		C		ARR	
WINTER QUARTER					
102	5	L R B B B	M W F T M M W	10 10 7 8 7	ROARK  P P P
605	3	L	M W F	2	COLLINS
611	3	L	T T	11 -1230	SLETTEBAK
651	3	L	M W F	3	CZYZAK
693	1-15	C		ARR	
785	3	L	T T	9 -1030	MITCHELL
786	3	L	T T	9 -1030	MITCHELL
802	1	S	T	3 - 5	
842	3	L	T T	1030-12	
852	3	L		1 - 230	
862	3	L		ARR	KRAUS
999		C		ARR	
SPRING QUARTER					
150	5	L L	M W T T	7 - 915P 7 - 915P	COLLINS SLETTEBAK
652	3	L	M W F	3	ROARK
693	1-15	C		ARR	
787	3	L	T T	3 -1030	MITCHELL
803	1	S	T	3 - 5	
843	3	L	T T	1030-12	
853	3	L	T T	1 - 230	
863	3	L		ARR	KRAUS
999	1-15	C		ARR	

## Aviation

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

201	1	B	MTWTF	ARR	
211	4	L	M W F	8	
		B	T	8	-10
		L	M W F	2	
		B	T	3	- 5
401	1-04	B	MTWTF	ARR	
411	3	L	M W F	9	

### WINTER QUARTER

111	3	L	M W F	1	
201	1	B	MTWTF	ARR	
211	4	L	M W F	8	
		B	T	8	-10
		L	T	7	- 930P
		B	T	7	- 9 P
401	1-04	B	MTWTF	ARR	
415	3	L	M W F	9	

### SPRING QUARTER

201	1	B	MTWTF	ARR	
211	4	L	M W F	8	
		B	T	8	-10
		L	T	7	- 930P
		B	T	7	- 9 P
401	1-04	B	MTWTF	ARR	
419	3	L	M W F	9	

## Biochemistry

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

511	4	L	M W F	9	
521	3	B	T T	9	-12
531	3	L	M W F	9	
541	3	B	T T	100-	400
611	5	L	M W F	8	
621	5	C	T T	8	-12
693	2-05	I		ARR	
785	2-05	I		ARR	
850	2	S	T	4	
999		I		ARR	

### WINTER QUARTER

511	4	L	M W F	2	
521	3	B	T T	1	- 4
541	3	B	T T	8	-11
612	5	L	M W F	8	
622	5	B	T T	8	-12
693	2-05	I		ARR	

785	2-05	I		ARR	
850	2	S	T	4	
999		I		ARR	

### SPRING QUARTER

521	3	B	T T	1	- 4
531	3	L	M W F	9	
541	3	B	T T	8	-11
511	4	L	M W F	1	
613	5	L	M W F	8	
623	5	B	T T	8	-12
693	2-05	I		ARR	
785	2-05	I		ARR	
850	2	S	T	4	
999		I		ARR	

## Biology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

102	5	L	M W	8	
		L	M W	9	
		L	M W	10	
		L	M W	2	
		L	M W	3	
		L	M W	4	
		L	M W	5	
		BR	T TF	8	
		BR	T TF	9	
		BR	T TF	10	
		BR	T TF	11	
		BR	T TF	12	
		BR	T TF	1	
		BR	T TF	2	
		BR	T TF	3	
		BR	T TF	4	
		BR	T TF	5	
		B	M W	8	
		R	M W	F	8
		B	M W	F	9
		R	M W	F	10
		R	M W	F	10
		B	M W	F	11
		R	M W	F	11
		B	M W	F	12
		R	M W	F	12
		B	M W	F	1
		R	M W	F	1
		B	M W	F	2
		R	M W	F	2
		B	M W	F	3
		R	M W	F	3
		B	M W	F	4
		R	M W	F	4
		B	M W	F	5
		R	M W	F	5
		B	M W	8	
		R	T	8	
		B	M W	9	
		R	T	9	
		B	M W	10	
		R	T	10	
		B	M W	11	
		R	T	11	
		B	M W	12	
		R	T	12	
		B	M W	1	
		R	T	1	
		B	M W	2	
		R	T	2	
		B	M W	3	
		R	T	3	



B M W 4  
R T 4  
B M W 5  
R T 5  
B M W 8  
R T 8  
B M W 9  
R T 9  
B M W 10  
R T 10  
B M W 11  
R T 11  
B M W 12  
R T 12  
B M W 1  
R T 1  
B M W 2  
R T 2  
B M W 3  
R T 3  
B M W 4  
R T 4  
B M W 5  
R T 5

13n 5 L MTWTF 11 PLAINE  
41n 5 L M WTF 9 KLIKOFF  
B T 8 -10  
B T 10 -12  
42n 5 D MTWTF 12 TIDD  
D MTWTF 1  
63n 5 L MTWTF 9 HOUSE  
65n 5 L TWTF 8 SKAVARIL  
B M 8 -10  
B M 1 -3  
B T 1 -3  
86n 3 L M W 2 VALENTINE  
B T 1 -3

WINTER QUARTER

102 5 L M W 8  
L M W 9  
L M W 10  
L M W 2  
L M W 3  
L M W 4  
L M W 5  
BR T TF 8  
BR T TF 9  
BR T TF 10  
BR T TF 11  
BR T TF 12  
BR T TF 1  
BR T TF 2  
BR T TF 3  
BR T TF 4  
BR T TF 5  
B M W 8  
R M W F 8  
B M W F 9  
R M W F 9  
B M W F 10  
R M W F 11  
B M W F 11  
R M W F 12  
B M W F 12  
R M W F 1  
B M W F 1  
R M W F 2  
B M W F 2  
R M W F 3  
B M W F 3  
R M W F 4  
B M W F 4  
R M W F 5  
B M W F 5  
R T T 8  
B M T T 9  
R M T T 9  
B T T 10  
R M T T 10  
B T T 11  
R M T T 11  
B T T 12  
R M T T 12  
B T T 1  
R M T T 1  
B T T 2  
R M T T 2

B T T 3  
R M 3  
B T T 4  
R M 4  
B T T 5  
R M 5

13n 5 L MTWTF 8 PLAINE  
41n 5 L M W F 9 COLINVAUX  
B T 8 -10  
B T 10 -12  
B T 12 -2  
63n 5 L MTWTF 9 HOUSE  
631 5 L T T 1 PADDOCK  
B M W F 1 -3  
64n 5 L M W F 10 BYERS GEISY  
B T 1 -5  
B W 1 -5  
B T 1 -5  
651 5 L M WTF 11 HARVEY  
B T 10 -12

SPRING QUARTER

102 5 L M W 8  
L M W 9  
L M W 10  
L M W 2  
L M W 3  
L M W 4  
L M W 5  
BR T TF 8  
B T T 8  
R F 8  
BR T TF 9  
B T T 9  
R F 9  
BR T TF 10  
B T T 10  
R F 10  
BR T TF 11  
B T T 11  
R F 11  
BR T TF 12  
B T T 12  
R F 12  
BR T TF 1  
B T T 1  
R F 1  
BR T TF 2  
B T T 2  
R F 2  
BR T TF 3  
B T T 3  
R F 3  
BR T TF 4  
B T T 4  
R F 4  
BR T TF 5  
B T T 5  
R F 5  
B M W 8  
R T 8  
B M W 9  
R T 9  
B M W 10  
R T 10  
B M W 11  
R T 11  
B M W 12  
R T 12  
B M W 1  
R T 1  
B M W 2  
R T 2  
B M W 3  
R T 3  
B M W 4  
R T 4  
B M W 5  
R T 5

13n 5 L MTWTF 11  
42n 5 D MTWTF 9 TIDD  
D MTWTF 10 TIDD  
65n 5 L TWTF 3 SKAVARIL  
B M 1 -3  
B T 1 -3  
B M 3 -5

**Biology (Cont'd)**

831	5	D	MTWTF	8	HOUSE
832	5	L	MT TF	10	HARVEY
		B	W	10 -12	

**Biophysics**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

70n	1	S		ARR	
702	1-03	B		ARR	
793	1-05	B		ARR	
80n	3	C		ARR	
999		I		ARR	

## WINTER QUARTER

70n	1	S		ARR	
702	1-03	B		ARR	
793	1-03	B		ARR	
80n	3-18	C		ARR	
999		I		ARR	

## SPRING QUARTER

70n	1	S		ARR	
702	1-03	B		ARR	
793	1-05	B		ARR	
80n	3	C		ARR	
999		I		ARR	

**Botany**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

10n	5	BD	MTWTF	8	
		BD	MTWTF	9	
		BD	MTWTF	10	
		BD	MTWTF	11	
		BD	MTWTF	12	
		BD	MTWTF	1	
		BD	MTWTF	2	
		BD	MTWTF	3	
		BD	MTWTF	4	
		BD	MTWTF	5	
101	5	BD	MTWTF	9	
		BD	MTWTF	10	
		BD	MTWTF	11	
		BD	MTWTF	12	
		BD	MTWTF	1	
		BD	MTWTF	2	
		BD	MTWTF	3	
		BD	MTWTF	5	
102	5	BD	MTWTF	8	
		BD	MTWTF	9	
		BD	MTWTF	10	

43n	3+05	L	M W F	10	MEYER BURLEY
		L	M W F	1	BURLEY ZABKA
		R	T	8	
		B	T	9	
		B	T	8	-10
		R	T	10	
		B	T	11	
		B	T	10	-12

50n	5	BD	MTWTF	8	TAFT
		BD	MTWTF	9	TAFT

612	5	L	M W F	10	FISHER
		B	T T	10	FISHER

62n	5	L	M W F	11	GILBERT
		BF	T	2	GILBERT

641	5	BD	MTW F	1	BLAYDES
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65n	5	L	M W F	9	PADDOCK
		B	T T	8	PADDOCK

66n	5	L	M W F	1	SCHMITT
		B	T T	1	SCHMITT

693	1-05	C		ARR	
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809	1	S		T	4
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819	2	S		ARR	FISHER
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829	2	S		ARR	GILBERT
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83n	3	BD	M W	12	BURLEY PLATT
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832	3	L	M W F	3	PLATT
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839	1	S		T	3
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869	2	S		ARR	SCHMITT
-----	---	---	--	-----	---------

897	1	S		ARR	
-----	---	---	--	-----	--

999		I		ARR	
-----	--	---	--	-----	--

## WINTER QUARTER

10n	5	BD	MTWTF	8	
		BD	MTWTF	9	
		BD	MTWTF	10	
		BD	MTWTF	11	
		BD	MTWTF	12	
		BD	MTWTF	1	
		BD	MTWTF	2	
		BD	MTWTF	3	
		BD	MTWTF	4	
		BD	MTWTF	5	

101	5	BD	MTWTF	8	
		BD	MTWTF	9	
		BD	MTWTF	10	
		BD	MTWTF	11	
		BD	MTWTF	12	
		BD	MTWTF	1	
		BD	MTWTF	2	
		BD	MTWTF	3	
		BD	MTWTF	5	

102	5	BD	MTWTF	8	
		BD	MTWTF	9	
		BD	MTWTF	10	
		BD	MTWTF	11	
		BD	MTWTF	12	
		BD	MTWTF	1	
		BD	MTWTF	2	
		BD	MTWTF	3	
		BD	MTWTF	4	

43n	3+05	L	M W F	11	BURLEY
		R	T	8	
		B	T	9	
		B	T	8	-10
		R	T	10	
		B	T	11	
		B	T	10	-12

431	3+05	L	M W F	10	ZABKA
		R	T	1	
		B	T	2	
		B	T	1	- 3
		R	T	3	
		B	T	4	
		B	T	3	- 5

50n	5	BD	MTWTF	9	TAFT
-----	---	----	-------	---	------



64n	5	BD	MTWT	10	-12	
642	5	B	TWTF	1	- 3	BLAYDES
643	5	BD	MTWT	1	- 3	POPHAM
662	5	L	M W F	1		SCHMITT
		B	T T	1	- 3	SCHMITT
693	1-05	C		ARR		
809	1	S	T	4		
819	2	S		ARR		FISHER
829	2	S		ARR		GILBERT
833	3	L	M W F	3		MEYER
839	1	S	T	3		BURLEY
861	5	L	M W F	1		
		B	T T	1	- 3	
869	2	S		ARR		SCHMITT
897	1	S		ARR		
999	1			ARR		

# SPRING QUARTER

10n	5	BD	MTWTF	8		
		BD	MTWTF	9		
		BD	MTWTF	10		
		BD	MTWTF	11		
		BD	MTWTF	12		
		BD	MTWTF	1		
		BD	MTWTF	2		
		BD	MTWTF	3		
		BD	MTWTF	4		
		BD	MTWTF	5		
101	5	BD	MTWTF	8		
		BD	MTWTF	9		
		BD	MTWTF	10		
		BD	MTWTF	11		
		BD	MTWTF	12		
		BD	MTWTF	1		
		BD	MTWTF	2		
		BD	MTWTF	3		
		BD	MTWTF	4		
102	5	BD	MTWTF	10		
		BD	MTWTF	11		
		BD	MTWTF	12		
		BD	MTWTF	1		
		BD	MTWTF	2		
		BD	MTWTF	3		
		BD	MTWTF	4		
41n	5	FBD	MTWT	8	-10	WEISHAMPT
		FBD	MTWT	10	-12	
		FBD	MTWT	12	- 2	
		FBD	MTWT	2	- 4	
		FBD	MTWT	4	- 6	
431	3+05	L	M W F	10		MEYER
		R	T	8		
		B	T	9		
		B	T	8	-10	
		R	T	10		
		B	T	11		
		B	T	10	-12	
44n	5	BD	MTWTF	2		
50n	5	BD	MTWTF	8		TAFT
62n	5	L	M W F	11		GILBERT
		BF	T	2	- 5	GILBERT
643	5	BD	MTW F	1	- 3	POPHAM
644	5	BD	TWTF	10	-12	TAFT
661	3	L	M W	1		SCHMITT
		B	F	1	- 3	SCHMITT
693	1-05	C		ARR		
72n	5	L	M W F	9		KLIKOFF
		BF	T	2	- 5	KLIKOFF
809	1	S	T	4		

819	2	S		ARR		FISHER
829	2	S		ARR		GILBERT
831	3	BD	M W	12		BURLEY PLATT
834	3	L	M W F	3		SWANSON
839	1	S	T	3		BURLEY MEYER
849	2	S		ARR		RUDOLPH
86n	3	BD	M W F	10	-12	SCHMITT
869	2	S		ARR		SCHMITT
896	1	S		ARR		
897	1	S		ARR		
898	1	S		ARR		
999	1			ARR		

# Business Organization

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
22n	3	D	M W F	1	
		D	M W F	2	
301	5	D	MTW F	9	
		D	T	9	
49n	3	D	M W F	8	
		L	M W	1	
		R	T	8	
		R	T	9	
		R	F	4	
		R	F	5	
50n	3	D	M W F	8	
		D	M W F	9	
		D	T	7	-10 P
51n	4	D	MTW F	8	
		D	MTW F	9	
		D	MTW F	1	
		D	T T	2	- 4
612	3	D	M W F	10	
613	3	D	M W F	11	
62n	4	D	MTW F	8	
		D	MTW F	10	
		D	MTW F	1	
63n	4	D	MTW F	2	
		L	M W F	12	
		R	T	8	
		R	T	9	
		R	T	1	
		R	T	2	
64n	4	D	MTWT	12	
		D	T T	4	- 6
65n	4	D	MTW F	9	
		D	T T	4	- 6
66n	3	D	M W F	11	
		D	M W F	4	
67n	4	D	MTWT	2	
		D	M W	7	- 9 P
693	1-03	C		ARR	
70n	5	D	MTWTF	11	
		D	MTWTF	2	
701	4	D	MTW F	9	
		D	MTW F	1	

Business Organization    (Cont'd)

702	3	D	M W F	10	
		D	M W F	3	
720	3	D	T T	5	- 615
721	3	D	M W F	11	
		D	M W F	2	
722	3	D	M W F	8	
		D	M W F	9	
724	3	D	M W F	3	
727	3	D	M W F	9	
731	4	D	MTWT	10	
		D	MTWT	11	
732	4	D	MTW F	1	
734	3	D	M W F	11	
741	4	D	T T	2	- 4
750	3	D	M W	5	- 615
751	6	D	M W F	1	- 3
		D	M W F	3	- 5
753	4	D	MTWT	9	
754	4	D	MTWT	2	
755	4	D	MTWT	1	
756	4	D	MTWT	10	
757	4	D	MTWT	2	
758	4	D	T T	8	-10
		D	T T	3	- 5
761	4	D	MTW F	2	
		D	MTW F	3	
762	4	D	MTWT	8	
769	3	D	M W F	2	
772	3	D	M W F	3	
799	4	D	T T	8	-10
		D	T T	1	- 3
800	3	D	T T	10	-1115
		D	T T	1	- 215
		D	W	7	-10 P
802	3	C	T	4	- 6
803	3	D	M W	11	-1215
		D	T T	1	- 215
		D	T T	5	- 615
809	3	D	T	4	- 6
		D	T	7	- 9 P
822	3	D	T	4	- 6
		D	T	7	- 9 P
852.03	3	D	W	4	- 6
860	3	D	T T	3	- 415
		D	T T	7	- 815P
		D	M	7	-10 P
880	3	D	T T	3	- 415
899	1-05	S			ARR
900	3	S	W	7	- 9 P
930	3	S	T	4	- 6
950	3	S	W	4	- 6
959	3	D	T	4	- 6
960	3	S	F	4	- 6
999		I			ARR

WINTER QUARTER

220	3	D	M W F	10	
		D	M W F	1	
490	3	D	M W F	8	
		L	M W	1	
		R	T	8	
		R	T	9	
		R	T	1	
		R	T	2	
		R	F	3	
		R	F	4	
500	3	D	M W F	8	
		D	M W F	9	
510	4	D	MTW F	9	
		D	MTW F	10	
		D	T* T	2	- 4
601	4	L	M W F	11	
		B	F	1	- 3
		B	F	3	- 5
611	3	D	M W F	8	
612	3	D	M W F	10	
		D	M W F	2	
613	3	D	M W F	1	
620	4	D	M W	8	-10
		D	M W	4	- 6
630	4	L	M W F	9	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	1	
		R	T	2	
		R	T	3	
		R	T	4	
		D	M W	7	- 9 P
640	4	D	MTWT	2	
		D	T T	10	-12
650	4	D	T T	8	-10
		D	T T	4	- 6
660	3	D	M W F	9	
		D	M W F	11	
670	4	D	MTWT	2	
693	1-03	C			ARR
700	5	D	MTWTF	8	
		D	MTWTF	9	
701	4	D	MTW F	1	
		D	MTW F	3	
702	3	D	M W F	11	
		D	M W F	2	
720	3	D	T T	5	- 615
722	3	D	M W F	3	
		D	M W F	4	
723	3	D	M W F	9	
726	4	D	MTW F	2	
729	3	D	M W F	11	
731	4	D	MTW F	2	
732	4	D	MTWT	8	
		D	MTWT	9	
734	3	D	M W F	2	
743	4	D	MTWT	3	
749	4	D	T T	4	- 6
750	3	D	M W	5	- 615
751	6	D	M W F	1	- 3
		D	M W F	3	- 5
753	4	D	MTWT	2	



755	4	D	MTWTF	11	
756	4	D	MTWT	1	
762	4	D	MTWT	10	
		D	MTWT	11	
773	3	D	M W F	3	
799	4	D	T T	8 -10	
		D	T T	1 - 3	
801	3	D	M W	5 - 615	
		D	T T	1 - 215	
82n	3	D	M W	8 - 915	
		D	M W	11 -1215	
		D	T T	4 - 515	
		D	T T	7 - 815P	
83n	3	D	T T	10 -1115	
		D	T T	12 - 115	
		D	T T	1 - 215	
		D	T T	5 - 615	
84n	3	S	M	2 - 4	
85n	3	D	M W	4 - 515	
		D	M W	7 - 815P	
		D	T T	10 -1115	
		D	T T	1 - 215	
852.07	3	S	T	4 - 6	
87n	3	S	M	7 -10 P	
899	1-05	S		ARR	
901	3	D	W	7 - 9 P	
929	3	D	M	7 - 9 P	
931	3	S	T	4 - 6	
951	3	S	W	4 - 6	
961	3	S	T	4 - 6	
999		C		ARR	

SPRING QUARTER

22n	3	D	M W F	11	
		D	M W F	3	
49n	3	D	M W F	8	
		L	M W	1	
		R	T	8	
		R	T	9	
		R	T	1	
		R	T	2	
		R	F	3	
		R	F	4	
50n	3	D	M W F	8	
51n	4	D	MTW F	8	
		D	MTW F	9	
		D	T T	2 - 4	
612	3	D	M W F	8	
613	3	D	M W F	9	
62n	4	D	MTW F	10	
		D	MTW F	12	
		D	MTW F	1	
63n	4	D	MTW F	3	
		L	M W F	12	
		R	T	8	
		R	T	9	
		R	T	1	
		R	T	2	
64n	4	D	MTWT	9	
		D	T T	7 - 9 P	
65n	4	D	MTWT	11	
		D	T T	4 - 6	
66n	3	D	M W F	8	
		D	M W F	1	
67n	4	D	MTWT	10	

693	1-03	C		ARR	
70n	5	D	MTWTF	11	
		D	MTWTF	2	
701	4	D	MTW F	8	
		D	MTW F	12	
702	3	D	M W F	10	
		D	M W F	3	
72n	3	D	M W	5 - 615	
721	3	D	M W F	11	
		D	M W F	1	
722	3	D	M W F	11	
		D	M	7 -10 P	
723	3	D	M W F	8	
724	3	D	M W F	3	
729	3	D	M W F	1	
		D	M W F	2	
731	4	D	MTWT	11	
732	4	D	MTWT	8	
734	3	D	M W F	10	
739	3	D	M W F	11	
749	4	D	T T	10 -12	
75n	3	D	M W	7 - 815P	
751	6	D	M W F	8 -10	
		D	M W F	10 -12	
753	4	D	MTWT	9	
754	4	D	MTWT	3	
755	4	D	MTWT	10	
756	4	D	MTWT	11	
757	4	D	MTWT	2	
758	4	D	T T	3 - 5	
761	4	D	MTW F	2	
769	3	D	M W F	11	
		D	M W F	2	
771	3	D	M W F	3	
78n	4	D	MTWT	9	
799	4	D	T T	8 -10	
		D	T T	10 -12	
		D	T T	1 - 3	
80n	3	D	T T	10 -1115	
		D	T T	1 - 215	
		D	W	7 -10 P	
802	3	C	T	4 - 6	
803	3	D	M W	11 -1215	
		D	M W	2 - 315	
		D	T T	7 - 815P	
809	3	D	T	4 - 6	
		D	T	7 - 9 P	
832	3	D	W	7 - 9 P	
841	3	S	W	4 - 6	
852.01	1-03	S		ARR	
852.02	1-03	S		ARR	
852.03	1-03	S		ARR	
852.04	1-03	S		ARR	
852.05	1-03	S		ARR	
852.06	1-03	S		ARR	
852.07	1-03	S		ARR	

### Business Organization (Cont'd)

86n	3	D D D	T T T T M	10 1 7	-1115 - 215 -10 P	
889	3	D	F	4	- 6	
899	1-05	S		ARR		
909	3	S	W	4	- 6	
92n	3	S	T	4	- 6	
955	3	S	T	4	- 6	
999		C		ARR		

621	5	L B	MTW F T	8 8	-10	SHOOK SHOOK
631	4	L B	M W M W	11 1	- 4	SHOOK SHOOK
633	4	L B	T T T T	10 2	- 5	EVERHART
693	1-07	CBI		ARR		
742	4	L		ARR		KOENIG
79n	3	L	M W F	11		EVERHART
791	3	L	M W F	1		RUSSELL
854	4	L	MTWT	8		ALEXANDER
856	4	L	MTWT	10		KING
889	1-02	S	T	11		
999		I		ARR		

### Ceramic Engineering

No Crd't. Sec Day Time Instructor

#### AUTUMN QUARTER

421	5	L B	MTWT F	2 2	- 5	SHOOK SHOOK
51n	3	L	M W F	8		ALEXANDER
589	5	W		ARR		
611	4	L	MTW F	11		SHOOK
633	4	L B	T T T T	10 1	- 4	EVERHART
634	4	L B	M W M W	10 1	- 4	RUSSELL RUSSELL
693	1-07	CBI		ARR		
712	4	L	MTWT	9		KING
713	4	L	MTWT	8		SHOOK
785	3	L B	T	11 ARR		SHOOK SHOOK
889	1-02	S	W	10		
999		I		ARR		

#### WINTER QUARTER

422	5	L L	M W F T T	9 11		SHOOK SHOOK
632	4	L B	T T T T	10 1	- 4	KING KING
693	1-07	CBI		ARR		
711	4	L	MTWT	8		SHOOK
741	3	L	M W F	10		KOENIG
786	3	B		ARR		
853	4	L	MTWT	8		ALEXANDER
855	4	L	MTWT	10		RUSSELL
889	1-02	S	T	11		
999		I		ARR		

#### SPRING QUARTER

423	3	L	M W F	10		RUSSELL
489	2	F		ARR		
529	4	L	MTWT	9		EVERHART

### Chemical Engineering

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

40n	3	L B B	M W T T	9 1 3	- 3 - 5	KOFFOLT KOFFOLT KOFFOLT
489	5	W		ARR		KOFFOLT
52n	3	L B	M W	5 ARR	- 6	BRODKEY BRODKEY
608	3	L B B	T T T T	9 1 2	- 3 - 4	KAY KAY KAY
611	3	L B B	M W T T	11 1 3	- 3 - 5	GEANKOPLIS GEANKOPLIS GEANKOPLIS
693	2-08	B		ARR		KOFFOLT
75n	1	L	W	4		KOFFOLT
76n	3	L B B	T T T T	10 1 3	- 3 - 5	SYVERSON SYVERSON SYVERSON
761	3	L B	M W M	8 3	- 5	
77n	3	L B	T T T	8 1	- 5	SYVERSON SYVERSON
785	5-06	C B	T	4 ARR		
801	5-06	C B	T	4 ARR		
815.03	3	L	M W F	9		GEANKOPLIS
815.05	3	L	M W F	10		SWEENEY
815.08	3	L	M W F	1		BRODKEY
815.12	3	L	M W	5	- 6	DRYDEN
83n	2-06	B		ARR		
861	3	L B	T T M	9 3	- 5	SWEENEY SWEENEY
881	2	S		ARR		
999		C B	T	4 ARR		



## WINTER QUARTER

40n	3	LB		ARR		HAERING
401	3	L B B	M W T	11 1 - 3 3 - 5		GEANKOPLIS GEANKOPLIS GEANKOPLIS
52n	3	L B B	M W T	1 10 -12 1 - 3		BRODKEY BRODKEY BRODKEY
521	3	LB		ARR		SMITH
609	3	L B B	T T T	10 1 - 3 2 - 4		KAY KAY KAY
612	4	L B B	M W T	10 1 - 3 3 - 5		KOFFOLT KOFFOLT KOFFOLT
693	2-08	B		ARR		
762	4	C B B B	T M T T	1 2 - 5 2 - 6 1 - 5		SWEENEY SWEENEY SWEENEY SWEENEY
763	2	C B	F	2 ARR		SYVERSON SYVERSON
773	3	L	M W F	8		
777	3	L	M W F	8		DRYDEN
785	5+06	C B	W	4 ARR		
801	5	C B	W	4 ARR		
808	3	L	T	7 -10	P	KAY
812	3	L	M W F	10		SYVERSON
815.01	3	L	M W F	9		GEANKOPLIS
815.09	3	L	M W F	11		BRODKEY
815.13	3	L	M W	500- 615		DRYDEN
815.15	3	L		ARR		
83n	2-06	B		ARR		
862	5	C B B B B B	T M T T T T	10 2 - 5 11 1 - 5 10 -12 1 - 5		HAERING HAERING HAERING HAERING HAERING HAERING
881	2	S		ARR		
999		C B	W	4 ARR		

## SPRING QUARTER

401	3	L		ARR	
521	3	L	T	11	SWEENEY
		B	T	1 - 3	SWEENEY
		B	T	3 - 5	SWEENEY
608	3	L	T	7 -10	P SMITH
		B		ARR	SMITH
610	3	L	M W	10	SYVERSON
		B	F	10 -12	SYVERSON
		B	F	3 - 5	SYVERSON
611	3	L	M W	500- 615	BRODKEY
		B		ARR	BRODKEY
612	4	L		ARR	KOFFOLT
685	2	F		ARR	
693	2-08	B		ARR	
725	3	L	T T	10	DRYDEN
		B	T	1 - 5	DRYDEN
		B	T	1 - 5	DRYDEN

764	3	C	T	4		HAERING
		B	T T	8	-12	HAERING
771	3	L	M W F	2		SWEENEY
775	3	L	M W F	11		BRODKEY
778	4	LB		ARR		DRYDEN
785	5+06	C	T	4		
		B		ARR		
801		C	T	4		
		B		ARR		
809	3	L	T	7	-10 P	KAY
813	3	L	M W F	8		SYVERSON
815.02	3	L	M W F	9		GEANKOPLIS
815.10	3	L	T T	400-	515	BRODKEY
815.14	3	L		ARR		
83n	2-06	B		ARR		
881	2	S		ARR		
999		C		4		
		B		ARR		

## Chemistry

No.	Cr'd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	M	W	F	9	
		B	T			8	-11
		R	T			8	
		B	T			9	-12
		R	T			9	
		B		S	8		-11
		R	T			9	
		L	MTW			11	
		B		F		9	-12
		R	T			11	
		B	T			9	-12
		R		F		11	
		L	MTW			2	
		B		F		12	- 3
		R	T			2	
		B	T			2	
		L		F		2	
		B	M	W	F	4	
		R	T			3	- 6
		B	T			4	
		L		W		7	- 9
		L	T			8	
		B	T			7	-10
		R	T			7	
102	5	L	M	W	F	8	
		B	T			8	-11
		R	T			8	
		B	T			9	-12
		R	T			9	

102	5	L	M W F	8	
		B	T	8	-11
		R	T	8	
		B	T	9	-12
		R	T	9	

## Chemistry (Cont'd)

111	4	L	T T	9	
		B	M	8	-11
		R	F	8	
		B	W	9	-12
		L	W F	10	
		B	T	8	-11
		R	M	10	
		B	T	9	-12
		R	M	11	
		L	T F	2	
		B	M	12	- 3
		R	W	1	
		B	T	12	- 3
		R	W	2	
		L	M W	3	
		B	T	3	- 6
		R	F	3	
		L	T	7	- 9 P
		B	T	7	-10 P
		R	T	9	P
113	4	L	F	4	
		B	T T	3	- 6
		R	W	4	
121	5	L	T T	8	
		B	M	8	-11
		R	F	8	
		B	W	8	-11
		R	F	9	
		L	T T	10	
		B	M	9	-12
		R	F	10	
		B	W	9	-12
		R	F	11	
		L	T T	1	
		B	M	12	- 3
		R	F	12	
		B	W	12	- 3
		R	F	1	
		L	T T	3	
		B	M	3	- 6
		R	F	2	
		B	W	3	- 6
		R	F	3	
		L	T	7	- 9 P
		B	T	7	-10 P
		R	W	7	P
122	5	L	W F	1	
		B	T	12	- 3
		R	M	1	
		R	M	2	
123	5	L	M T	12	
		B	W F	12	- 3
		B	F	3	- 6
		B	S	8	-11
201	5	L	T T	10	
		B	M W	10	-12
		R	F	10	
211	3	L	T T	9	
		B	M W	9	-12
211	4	L	T T	9	
		B	M W F	1	- 4
211	3	L	T T	1	
		B	M W	9	-12
211	4	B	T T	1	- 4
		B	S	9	-12
211	3	B	T T	9	-12
		B	M W	1	- 4
211	4	L	T T	1	
		B	M W F	1	- 4
		B	T T	1	- 4
		B	S	9	-12
221	4	L	M W F	9	
		B	M W F	2	- 5
		B	T T	2	- 5
		B	S	9	-12
231	5	L	M W F	11	
		B	T	10	-12
		B	T	9	-12
		B	T	9	
		B	T	2	- 4

		B	T	1	- 4
		R	T	1	
		B	T	8	-10 P
		B	T	7	-10 P
		R	T	7	
		R	T	7	- 8 P
241	3	L	M W F	1	
243	3	B	M	9	-11
		B	W F	8	-11
		R	M	8	
		B	M	3	- 5
		B	W F	2	- 5
		R	M	2	
251	3	L	7 M W F	1	
		L	M W F	12	
501	5	L	MTWTF	8	
531	3	L	M W F	8	
		R	T	8	
		R	F	10	
		L	M W F	8	
541	3	B	M W F	8	-11
		B	M W F	2	- 5
551	2	B	T T	8	-12
		B	T T	1	- 5
552	2	B	T T	8	-12
		B	T T	1	- 5
601	1	L	T	1	
611	3	L	T T	9	
		L	S	8	
613	4	L	T T S	9	
		B	ARR		
		B	ARR		
631	3	L	M	4	
		B	T T	2	- 5
		B	S	8	-11
635	3	L	T T S	11	
651	3	L	M W F	10	
671	3	L	M W F	3	
675	4	L	M W F	4	
		B	ARR		
693	1-15	C		ARR	
831	3	L	M W F	4	
851	3	L	M W F	10	
875	3	L	M W F	11	
885	1	S		ARR	
941	3	L	M W F	1	
970	3	L	T T	2	- 4
971	3	L	M W F	2	
991	3	S		ARR	
992	3	S		ARR	
995	2+03	S		ARR	
997	3	S		ARR	
999	1			ARR	
WINTER QUARTER					
101	5	L	M W F	8	
		B	S	8	-11
		R	T	8	
		B	F	9	-12
		R	T	9	
		B	S	8	-11
		R	T	9	
		L	MTW	2	
		B	F	12	- 3
		R	T	2	



		B	T	12	- 3
		R	F	2	
102	5	L	M W F	9	
		B	T	8	-11
		R	T	8	
		B	T	9	-12
		R	T	9	
		B	S	8	-11
		R	T	9	
		L	MTW	11	
		B	F	9	-12
		R	T	11	
		B	T	9	-12
		R	F	11	
		L	MTW	4	
		B	T	3	- 6
		R	F	4	
111	4	L	TF	4	
		B	M	3	- 6
		R	T	4	
		B	T	3	- 6
		R	W	4	
112	4	L	T T	9	
		B	M	8	-11
		R	F	8	
		B	W	9	-12
		R	F	9	
		L	W F	10	
		B	T	8	-11
		R	M	10	
		B	T	9	-12
		R	M	11	
		L	TF	2	
		B	M	12	- 3
		R	W	1	
		B	W	12	- 3
		R	W	2	
		L	M W	3	
		B	T	3	- 6
		R	F	3	
		B	F	3	- 6
		R	T	3	
		L	T	7	- 9 P
		B	T	7	-10 P
		R	T	9	P
121	5	L	W F	1	
		B	T	12	- 3
		R	M	2	
		B	T	12	- 3
		R	M	3	
122	5	L	T T	8	
		B	M	8	-11
		R	F	8	
		B	W	8	-11
		R	F	9	
		L	T T	10	
		B	M	9	-12
		R	F	10	
		B	W	9	-12
		R	F	11	
		L	T T	1	
		B	M	12	- 3
		R	F	12	
		B	W	12	- 3
		R	F	1	
		L	T T	3	
		B	M	3	- 6
		R	F	2	
		B	W	3	- 6
		R	F	3	
		L	T	7	- 9 P
		B	W	7	-10 P
		R	T	7	P
123	5	L	MT T	12	
		B	W F	12	- 3
202	5	L	T T	10	
		B	M W	10	-12
		R	F	10	
211	3	L	T T	2	
		B	T T	9	-12
		R	M W	1	- 4
211	4	L	T T	2	
		B	T T S	9	-12
		R	M W F	1	- 4
212	3	L	T T	9	
		B	M W	9	-12

212	4	L	T T	9	
		B	M W F	1	- 4
212	3	L	T T	1	
		B	M W	1	- 4
		R	T T	2	- 5
212	4	L	T T	1	
		B	T T	2	- 5
		R	S	9	-12
232	5	L	M W F	11	
		B	T	10	-12
		R	T	9	-12
		B	T	9	
		R	T	2	- 4
		B	T	1	- 4
		R	T	1	
		B	T	8	-10 P
		R	T	7	-10 P
		B	T	7	P
242	3	L	M W F	1	
244	3	B	M	9	-11
		R	W F	8	-11
		B	M	8	
		R	M	3	- 5
		B	W F	2	- 5
		R	M	2	
252	3	L	M W F	12	
		L 7	M W F	1	
254	3	B	M	10	-12
		R	W F	9	-12
		B	M	9	
		R	M	3	- 5
		B	W F	2	- 5
		R	M	2	
		B 1	ARR		
		R	M	4	
532	3	L	M W F	8	
		R	T	8	
		R	F	10	
		L 1	M W F	8	
551	2	B	M W	8	-11
		B	M W	2	- 5
552	2	B	T T	8	-12
		B	T T	1	- 5
602	2	L	T T	10	
612	4	L	T T S	9	
		B	ARR		
622	4	L	T T	4	
		B	M W	9	-12
		R	M W	1	- 4
		B	T T	9	-12
		R	T T	1	- 4
652	3	L	M W F	10	
676	3	L	M W F	9	
693	1-15	C	ARR		
733	3	L	T T	1	- 3
832	3	L	M W F	4	
852	3	L	M W F	10	
871	3	B	T T	1	- 5
876	3	L	M W F	1	
881	3	L	T T	10	-12
885	1	S	ARR		
942	3	L	M W F	1	
972	3	L	M W F	2	
981	3	L	ARR		
992	3	S	ARR		
997	3	S	ARR		
999	I		ARR		

## Chemistry (Cont'd)

## SPRING QUARTER

101	5	L	WTF	4	
		B	T	3	- 6
		R	M	4	
		B	M	3	- 6
		R	T	4	
102	5	L	M W T	11	
		B	F	8	-11
		R	T	10	
		B	F	9	-12
		R	T	11	
		L	MTW	2	- 3
		B	F	12	
		R	T	3	- 6
		B	F	2	
112	4	L	M W	3	
		B	F	3	- 6
		R	T	3	
113	4	L	W	8	
		B	T T	8	-11
		R	M	8	
		L	T	11	
		B	M W	9	-12
		R	F	10	
		L	F F	11	
		B	T T	3	- 6
		R	M	3	
		B	M	4	
121	5	L	M W	1	
		B	T	12	- 3
		R	F	1	
		B	T	12	- 3
		R	F	2	
122	5	L	T T	1	
		B	M	12	- 3
		R	F	12	
		B	W	12	- 3
		R	F	1	
123	5	L	T T F	9	
		B	M W	8	-11
		L	M W F	10	
		B	T T	9	-12
		R	F	8	-10
		L	S	8	-12
		B	MT	4	
		L	T	3	
		B	W F	3	- 6
		L	T	7	- 9
		B	W	7	P
		R	W	8	-11
		B	T	7	-10
203	5	L	T T	10	
		B	M W	9	-12
		R	F	10	
211	3	L	M W	9	
		B	T T	9	-12
212	3	L	T T	2	
		B	M W	1	- 4
213	3	L	T T	1	
		B	T T	2	- 5
		R	S	9	-12
231	5	L	M W F	11	
		B	T T	9	-12
		R	T	9	
		B	T T	1	- 4
		R	T	1	
241	3	L	M W F	1	
243	3	B	M	9	-11
		B	W F	8	-11
		R	M	8	
		B	M	3	- 5
		R	W F	2	- 5
		B	M	2	
253	3	L	7 M W F	1	
		L	M W F	12	

255	3	B	M	10	-12
		B	W F	9	-12
		R	M	9	
		B	M	3	- 5
		B	W F	2	- 5
		R	M	2	
		B	1		ARR
255		R	M	4	
511	5	L	M W F	9	
511		B	T T	2	- 5
521	5	L	MTWTF	1	
533	3	L	M W F	8	
		R	T	8	
		L	F	10	
		L	1 M W F	8	
541	3	B	M W F	8	-11
		B	M W F	2	- 5
551	2	B	T T	8	-12
		B	T T	1	- 5
552	2	B	T T	8	-12
		B	T T	1	- 5
616	4	L	M W	2	
		B		6,8	HR ARR
621	4	L	T T	11	
		B	M W	8	-11
		B	M W	1	- 4
		B	T T	8	-11
		B	T T	1	- 4
632	3	L	M W F	9	
653	3	L	M W F	10	
655	3	B			ARR
693	1-15	C			ARR
833	3	L	M W F	4	
873	3	L	M W F	4	
877	3	L	M W F	1	
882	3	L	T T	10	-12
885	1				ARR
943	3	L	M W F	1	
973	3	L	M W F	2	
992	3	S			ARR
997	3	S			ARR
999		I			ARR

## Chinese

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	R	MTWTF	9	CHING
104	5	R	MTWTF	10	LEE
251	3	L	M W F	11	LYELL
609	3	R	M W F	3	LEE
624	5	L	M W F	2	CHING
651	3	R	M W F	9	LYELL
693	2-05	D			ARR



WINTER QUARTER

102	5	R	MTWTF	9	CHING
271	3	L	M W F	1	LYELL
405	3	R	M W F	10	LEE
610	3	R	M W F	3	LEE
626	5	L	M W F	2	CHING
652	3	R	M W F	9	LYELL
661	3	L	M W F	11	LYELL
693	2-05	D		ARR	

SPRING QUARTER

103	5	R	MTWTF	9	CHING
406	3	R	M W F	10	LEE
611	3	R	M W F	3	LEE
627	3	L	M W F	2	CHING
653	3	R	M W F	9	LYELL
671	3	L	M W F	11	LYELL
693	2-05	D		ARR	

## City and Regional Planning

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

731	3	D		ARR	BRINKERS
794	1-05	SC		ARR	
812	3	D		ARR	STOLLMAN
841	3	B		ARR	GERCKENS
851	5			ARR	GERCKENS
861	4	D		ARR	STOLLMAN
899	1-05	S		ARR	
999		C		ARR	

WINTER QUARTER

742	3	D		ARR	GERCKENS
794	1-05	SC		ARR	
811	3	D		ARR	WHEELER
832	5	B		ARR	MILLS
842	3	B		ARR	GERCKENS
852	5	B		ARR	GERCKENS
862	3	D		ARR	STOLLMAN
899	1-05	S		ARR	
999		C		ARR	

SPRING QUARTER

300	3	L	M W F	9	STOLLMAN
794	1-05	SC		ARR	
813	3	D		ARR	
833	3	B		ARR	MILLS

843	5	B		ARR	GERCKENS
853	5	B		ARR	GERCKENS
899	1-05	S		ARR	
999		C		ARR	

## Civil Engineering

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

401	5	L	M W F	8	PURTZ
		L	M W F	9	PURTZ
		B	M W	2 - 5	
		B	T T	2 - 5	
512	3	L	M W F	8	RICCA
		L	M W F	9	RICCA
552	4	L	M W F	8	MADJIDZADEH
		L	M W F	9	MADJIDZADEH
		B	T	2 - 5	
		B	T	2 - 5	
570	5	L	MT TF	8	KARRER
		S	T	2 - 4	
571	4	L	M W F	10	TREITERER
		L	M W F	11	TREITERER
		B	T	2 - 4	
		B	T	2 - 4	
582	3	L	M W F	3	VERNER
631	5	L	M W F	10	SMITH
		L	M W F	11	SMITH
		B	T T	8 -10	SMITH
		B	T T	10 -12	
672	3	L	T T	11	TREITERER
		B	T	2 - 5	
681	3	L	M W F	2	VERNER
701	4	L	M	3 - 5	MINTZER
		B	W F	3 - 5	MINTZER
711	3	L	T T	9	SHUMATE
		B	T T	10 -12	SHUMATE
716	3	L	M W F	1	COSENS
		B		ARR	COSENS
731	4	L	MT TF	8	CHEN
		L	MT TF	9	CHEN
733	3	L	M W F	11	BISHARA
751	4	L	MT TF	10	WU
771	3	L	T T	1	KARRER
		B	T	2 - 5	KARRER
794	3-05	C		ARR	
801	3-05	L		ARR	
810	5	L	M W F	9	COSENS
		B		ARR	
832	5	L	M W F	4 - 530	OJALVO
850	5	L	MTWTF	8	GREY
857	5	L	MTWTF	9	MADJIDZADEH
858	3	L	M W F	1	WU
871	5	L	M W	2 - 4	SCHWAR
		B	F	2 - 5	SCHWAR
881	1	S		ARR	COSENS

## Civil Engineering (Cont'd)

885 3-05 C ARR  
999 C ARR

## WINTER QUARTER

401 5 L T T 730- 9 P PURTZ  
B T T 2 - 5

402 4 L M W F 10 MINTZER  
B T 8 -11 MINTZER  
B T 8 -11 MINTZER  
B T 2 - 5 MINTZER  
B T 2 - 5 MINTZER  
L M W F 11 MINTZER

410 3 L M W F 3 COSENS

430 4 L MT TF 9 CHEN  
L MT TF 1 OJALVO

510 3 L M W 2 - 315 RICCA

530 3 L M W F 10 PURTZ

601 3 L T T 2 - 3 PURTZ  
B T T 3 - 5 PURTZ

611 5 L MTWTF 8 COSENS  
L MTWTF 9 COSENS

613 3 L M W F 4 RICCA

632 5 L M W F 11 BISHARA  
B T T 10 -12 BISHARA

651 4 L M W F 10 WU  
L M W F 11 WU  
B T 2 - 5  
B T 2 - 5

652 4 L MT TF 12 MADJIDZADEH

671 3 L M W F 8 KARRER  
L M W F 9 KARRER

673 3 L M F 11 NEMETH  
B T 8 -11 NEMETH

680 3 L M W F 3 VERNER

682 3 L M W F 4 VERNER

713 3 L T T 9 SHUMATE  
B T T 10 -12 SHUMATE

732 3 L M W F 10 SMITH

736 4 L M W F 1 SMITH  
B ARR

752 4 L T T 11 MADJIDZADEH  
B T T 8 -11 MADJIDZADEH

794 3-05 C ARR

811 5 L M W F 8 SHUMATE  
B ARR SHUMATE

831 5 L MTWTF 9 BISHARA

851 5 L M W F 8 GRAY  
B ARR GRAY

854 3 L M W F 11 COFFMAN

872 5 L M F 2 - 4 SCHWAR  
B W 2 - 5 SCHWAR

885 3-05 C ARR  
999 C ARR

## SPRING QUARTER

201 5 L M W F 10 PURTZ  
B T T 2 - 5 PURTZ

403 5 L M W F 8 PURTZ  
L M W F 9 PURTZ

404 3 L T T 10 PURTZ  
B F 2 - 5

511 3 L M W F 10 -11 RICCA  
L M W F 11

531 4 L MT TF 8 SMITH  
L MT TF 11 OJALVO

551 4 L M W F 10 WU  
L M W F 1 WU  
B M 2 - 5  
B T 2 - 5

581 4 L T T 2 - 4 VERNER

589 2 C ARR

612 5 L MTWTF 9 COSENS  
L MTWTF 10 COSENS

632 5 L M W F 9 CHEN  
L M W F 10 CHEN  
B T T 8 -10 CHEN  
B T T 10 -12 CHEN

712 3 L M W F 10 HANNA

731 4 L MT TF 11 BISHARA

734 3 L M W F 11 SMITH

772 4 L M W F 8 PAGEN  
B T 2 - 5 PAGEN

773 4 L T T 8 KARRER  
B T T 9 -11 KARRER

776 4 L M W F 1 MINTZER  
B ARR MINTZER

794 3-05 C ARR

801 3-05 C ARR PURTZ

812 5 L M W F 8 HANNA  
B ARR HANNA

830 5 L MTWT 2 SMITH  
B ARR SMITH

833 5 L M W F 4 - 530 OJALVO

834 5 L MTWTF 3 CHEN

853 5 L MTWTF 8 GRAY

855 5 L MTWTF 11 WU

856 5 L MTWTF 9 MADJIDZADEH

870 5 L MTWTF 11 KARRER

873 5 L M F 1 - 3 SCHWAR  
B W 1 - 4

885 3-05 C ARR

896 1-03 S ARR

999 C ARR

## Classics

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

210 3 L M W F 12  
L M W F 1

220 5 L MTWTF 2 BARMANN

221 5 L MTWTF 11 FORBES



222	5	L	MTWTF	9	MORFORD
224	3	L	M W F	12	LENARDON

#### WINTER QUARTER

21n	3	L	M W F	12	
		L	M W F	1	
22n	5	L	MTWTF	12	
221	5	L	MTWTF	9	
222	5	L	MTWTF	11	LENARDON
225	3	L	M W F	10	BABCOCK

#### SPRING QUARTER

21n	3	L	M W F	12	
		L	M W F	1	
22n	5	L	MTWTF	11	FORBES
222	5	L	MTWTF	12	JONES

## Comparative Literature and Language

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

101	3	R	M W F	8	
		R	M W F	9	
		R 1	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R 1	M W F	1	
		R 1	M W F	2	
		R	M W F	3	
		R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	

#### WINTER QUARTER

102	3	R	M W F	8	
		R	M W F	9	
		R 1	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R 1	M W F	1	
		R 1	M W F	2	
		R	M W F	3	
		R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	

#### SPRING QUARTER

103	3	R	M W F	8	
		R	M W F	9	
		R 1	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
		R 1	M W F	2	
		R	M W F	3	
		R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	

## Conservation

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

201	3	D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
489	5	I		ARR	
693	2+03	I		ARR	
693	5	I		ARR	

#### WINTER QUARTER

202	3	D	M W F	11	JOHNSON
489	5	I		ARR	
693	2+03	I		ARR	
693	5+03	I		ARR	

#### SPRING QUARTER

201	3	D	M W F	11	
		D	M W F	1	
		D	M W F	2	
		D	M W F	4	
489	5	I		ARR	
693	2+03	I		ARR	
693	5	I		ARR	

## Dairy Science

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

201	5	L	M W F	8	BRAKEL
		B	T T	8 -10	
42n	5	L	MTWTF	1	FECHHEIMER
593	3+05	C		ARR	
61n	3	D	T T	10 -12	BARR PORTER
80n	1-03	S	M	4	
82n	3	D		ARR	
893	3+05	C		ARR	
999		I		ARR	

#### WINTER QUARTER

201	5	L	M W F	10	BRAKEL
		B	TwTF	10 -12	
34n	5	L	M W F	2	KAESER
		B	T T	1 - 3	
42n	5	L	MTWTF	9	FECHHEIMER
593	3+05	C		ARR	
72n	5	L	MTWTF	9	SWIGER

**Dairy Science (Cont'd)**

80n	1-03 S	M	4	
81n	3 D		ARR	GOMES
82n	3 D		ARR	
893	3-05 C		ARR	
999	I		ARR	

**SPRING QUARTER**

207	3 D	F	3 - 5	KAESER
	B	S	8 -12	
42n	5 L	W	10	FECHHEIMER
	D	T T	10 -12	
593	3-05 C		ARR	
612	3 L	M W F	1	LUDWICK
613	3 B	T T	1 - 3	LUDWICK
64n	5 L	M W T F	10	BRAKEL
	D	T	10 -12	
71n	3-05 D		ARR	VANDEMARK
80n	1 S	M	4	
81n	3 D		ARR	HINES PORTER
82n	3 D		ARR	
885	5 D		ARR	GILMORE
893	3-05 C		ARR	
898	1 S		ARR	
999	I		ARR	

489	3 W		ARR	
493	3-05 B		ARR	
631	3 L	M W F	2	HARPER
632	3 R	M	3	HARPER
	B	T T	2 - 5	
693	3-05 B		ARR	
745	5 L	T T	2 - 5	GOULD
85n	1 S	T	5	
885	3-05 B		ARR	
998	1-12 B		ARR	
999	1-12 B		ARR	

**SPRING QUARTER**

201	5 L	M W F	9	LINDAMOOD
	B	T T	9 -11	
289	3 W		ARR	KRISTOFFERSE
411	3 B	M W F	10 -12	SLATTER
489	3 W		ARR	KRISTOFFERSE
493	3-05 B		ARR	
623	5 L	M W F	2	HARPER
	B	T T	2 - 5	
634	5 L	M W F	1	KRISTOFFERSE
	B	M W	2 - 5	
693	3-05 B		ARR	
85n	1 S	T	5	
885	3-05 B		ARR	
898	1 S		ARR	
998	1-12 B		ARR	
999	1-12 B		ARR	

**Dairy Technology**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

289	3 W		ARR	KRISTOFFERSE
489	3 W		ARR	
493	3-05 B		ARR	
521	3 L	M W F	10	KRISTOFFERSE
522	3 R	T	1	KRISTOFFERSE
	B	T T	2 - 5	
636	5 L	M W F	1	GOULD
	B	M W	2 - 5	
693	3-05 B		ARR	
695	3 S	F	2 - 5	GOULD
85n	1 S	T	5	
885	3-05 B		ARR	
998	1-12 B		ARR	
999	1-12 B		ARR	

**WINTER QUARTER**

289	3 W		ARR	KRISTOFFERSE
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**Dance**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

111	3 B	MTWTF	4 - 6	ALKIRE
199	1 B	T	7 -10 P	ALKIRE
	B	T	7 -10 P	
214	3 B	MTWTF	3 - 5	BLAINE
438	3 L	T T	12	PATTON
	B	T T	1	PATTON
532	3 L	M W	3	ALKIRE
	B	M W	4	ALKIRE
	B	F	3 - 5	ALKIRE
534	3 L	MTWTF	1	PAYTON
	B	MTWTF	2	PAYTON
537	3 L	M W F	10	PAYTON
	B		62 HR ARR	PAYTON
65n	4 L	M W	7 - 9 P	BLAINE
	B	T	7 - 9 P	BLAINE
657	3 L	M W F	12	RITCHESON
693	1-04 I		ARR	ALKIRE
794	3 I		ARR	ALKIRE



WINTER QUARTER

112	3	B	MTWTF	4 - 6	ALKIRE
199	1	B	T	7 -10 P	ALKIRE
		B	T	7 -10 P	
215	3	B	MTWTF	3 - 5	BLAINE
439	3	L	T T	12	PATTON
		B	T T	1	PATTON
533	5	L	T T	11	
		B	MTWTF	7 - 9 P	
535	3	L	MTWTF	1	PAYTON
		B	MTWTF	2	PAYTON
658	3	L	M W F	12	RITCHESON
693	1-04	I		ARR	ALKIRE
794	3	I		ARR	ALKIRE

SPRING QUARTER

113	3	B	MTWTF	4 - 6	ALKIRE
138	3	L	M W F	2	RITCHESON
196	3	L	M W	9	
		B	T TFS	9	
199	1	B	T	7 -10 P	ALKIRE
		B	T	7 -10 P	
216	3	B	MTWTF	3 - 5	BLAINE
248	3	B	M W	11 - 1	
		L	F	12	
		B	T T	11 - 1	
		L	F	12	
531	3	L	M W	10	
		B	T TF	10	
536	3	L	MTWTF	1	PAYTON
		B	MTWTF	2	PAYTON
656	4	L	M W	7 - 9 P	BLAINE
		B	T	7 - 9 P	BLAINE
659	3	L	M W F	12	RITCHESON
693	1-04	I		ARR	ALKIRE
794	3	I		ARR	ALKIRE

Dental Hygiene

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

201	3	L	M	1	PERMAR
		B	W F	1 - 4	
301	1	L	M	8	SNYDER
311	2	D	T	8	WISE
		D	F	2	
321	3	K	MTW F	9 -12	WISE
		K	MTWT	2 - 5	WISE
331	1	L	T	8	REYNOLDS
341	1	L	T	9	BRUCE
351	2	L	T	10 -12	MOURAD
361	2	L	W F	8	PAPPAS

WINTER QUARTER

312	2	D	F	9	WISE
		D	F	2	
322	5	K	MTWT	9 -12	WISE
		K	F	10 -12	
		K	MTWT	2 - 5	WISE
		K	F	3 - 5	
372	3	L	F	1	WOELFEL
		B	T T	9 -12	
		B	T T	1 - 4	
382	2	L	M W	1	CATHERMAN

SPRING QUARTER

203	2	L	T	1	PERMAR
		B	T	1 - 4	
223	5	L	M W	1	REYNOLDS
		B	M W	2 - 4	
		B	F	1 - 4	
		B	T T	9 -12	
		B	S	9 -10	
233	1	L	M	9	PERMAR
243	2	L	W F	9	KOLAS
283	1	L	T	2	APP
313	1	D	F	1	WISE
323	5	K	MTWTF	9 -12	WISE
		K	MTWTF	2 - 5	
383	2	L	M W	1	CATHERMAN
393	2	L	T T	1	WEISENSTEIN

Dentistry

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

301	2	L	T	8	TRIPPY
		B	T	9 -12	TRIPPY
		B	T	9 -12	TRIPPY
320	1	L	M	10	WILSON
381	4	L	M	11	BOUCHER
		B	T	9 -12	BOUCHER
		B	T	1 - 4	BOUCHER
		B	T	1 - 4	BOUCHER
		B	T	9 -12	BOUCHER
404	1	L	T	10	WOELFEL
431	2	L	T	9	POSTLE
		B	W	2 - 5	POSTLE
484	2	L	M	1	LONG
		B	M	2 - 5	LONG
487	3	L	M	8	HEINTZ
		B	M	9 -12	HEINTZ
		B	F	2 - 5	HEINTZ
501	1	L	F	8	HIATT
511	1	L	M	9	
531	4	L	T	8	BECKWITH
		K	ARR		
546	4	L	W F	8	MELF1
		B	W F	9 -12	MELF1

## Dentistry (Cont'd)

541	4	L	M	10	KOLAS
		L	W	11	KOLAS
		L	S	8	KOLAS
		B	S	9	KOLAS
				-12	
547	1	L	M	8	O'BRIEN
551	1	L	M	11	PETTIT
560	1	L	W	8	APP
561	1	K		ARR	
581	2	L	W	9	BOUCHER
		K		ARR	
584	1	L	T	8	LONG
587	1	L	W	10	WEINTZ
593	1-06	K		ARR	
601	2	L	T	8	ALLISON
		K		ARR	
604	2	L	T	8	ALLISON
		K		ARR	
621	1	L	F	8	TRIPPY
631	5	L	S	9	TAYLOR
		K		ARR	
641	1	L	S	8	KOLAS
647	1	K		ARR	O'BRIEN
651	2	L	W	8	PETTIT
		K		ARR	
661	1	K		ARR	
681	3	L	M	8	BOUCHER
		K		ARR	
684	2	K		ARR	
700.01	1-15	SK		ARR	ALLISON
700.02	1-15	SK		ARR	WILLIAMS
700.03	1-15	SK		ARR	WILSON
700.04	1-15	SK		ARR	BOUCHER
700.05	1-15	SK		ARR	KOLAS
700.06	1-15	SK		ARR	WILSON
700.07	1-15	SK		ARR	PETTIT
700.08	1-15	SK		ARR	MCCONNELL
700.09	1-15	SK		ARR	MELFI
700.10	1-15	SK		ARR	WILSON
785	5	B		ARR	PERMAR
793	1-05	B		ARR	WILSON
795	1	S		ARR	

## WINTER QUARTER

302	4	L	M	9	TRIPPY
		B	W	8	TRIPPY
		B	F	1	TRIPPY
		B	T	1	TRIPPY
				-5	
305	1	L	M	11	CHANDLER
382	4	L	M	10	KREIDER
		B	T	1	KREIDER
		B	T	8	KREIDER
				-12	
432	3	L	W	1	H POSTLE
		B	W	2	H POSTLE
		B	F	9	H POSTLE
				-12	

452	3	L	F	1	PETTIT
		B	F	2	PETTIT
				-5	
462	1	L	T	3	APP
482	2	L	M	8	LARRIMER
		B	M	9	LARRIMER
				-12	
485	3	L	M	1	LONG
		B	M	2	LONG
		B	W	9	LONG
				-12	
502	1	L	W	8	HIATT
512	1	K		ARR	
532	4	L	T	8	BECKWITH
		B		ARR	
542	1	L	M	10	KOLAS
545	1	L	S	8	BLOZIS
548	1	L	M	11	O'BRIEN
552	1	K		ARR	
555	1	L	M	8	WILLIAMS
562	1	K		ARR	
572	1	L	F	8	HIATT
582	3	L	M	9	BOUCHER
		K		ARR	
585	2	L	T	8	LONG
		K		ARR	
593	1	K		ARR	
602	2	L	T	8	ALLISON
		K		ARR	
605	2	L	T	8	ALLISON
605		K		ARR	
612	2	K		ARR	
622	1	L	F	8	TRIPPY
632	5	L	M	8	TAYLOR
		K		ARR	
642	1	L	S	8	KOLAS
645	1	K		ARR	BLOZIS
648	1	K		ARR	
652	1	K		ARR	
662	1	K		ARR	
672	2	L	W	8	WALLACE
		K		ARR	
682	2	K		ARR	
685	2	K		ARR	
700.01	1-15	S	K	ARR	ALLISON
700.02	1-15	S	K	ARR	WILLIAMS
700.03	1-15	S	K	ARR	WILSON
700.04	1-15	S	K	ARR	BOUCHER
700.05	1-15	S	K	ARR	KOLAS
700.06	1-15	S	K	ARR	WILSON
700.07	1-15	S	K	ARR	PETTIT
700.08	1-15	S	K	ARR	MCCONNELL
700.09	1-15	S	K	ARR	MELFI
700.10	1-15	S	K	ARR	WILSON
785	5	B		ARR	PERMAR
793	1-05	B		ARR	WILSON



795 1 S ARR  
999 I ARR

SPRING QUARTER

303 2 L M 8 TRIPPY  
B W 8 -11 TRIPPY  
B M 1 - 4 TRIPPY  
306 1 L M 10 CHANDLER  
386 1 L F 8 CUMMINS  
389 5 L M 9 HEINTZ  
B T T 9 -12 HEINTZ  
403 1 L W 8 HIATT  
413 1 L T 10 BAZLER  
433 3 L W 1 POSTLE  
B W 2 - 5 POSTLE  
B F 8 -11 POSTLE  
453 2 L F 1 PETTIT  
B F 2 - 5 PETTIT  
463 1 L F 11 APP  
483 3 L M 11 BOUCHER  
B M 8 -11 BOUCHER  
B T 1 - 4 BOUCHER  
486 3 L M 1 LONG  
B M 2 - 5 LONG  
B W 9 -12 LONG  
489 1 L T 9 STEFFEL  
513 1 K ARR  
533 4 L T 1 BECKWITH  
K ARR  
546 1 L T 1 BLOZIS  
549 1 L M 11 OBRIEN  
553 1 K ARR  
556 2 L M W 8 WILLIAMS  
563 1 K ARR  
573 1 L F 8 HIATT  
583 3 L M 9 BOUCHER  
K ARR  
586 3 L M 10 LONG  
K ARR  
593 1-06 K ARR  
603 2 L T 8 ALLISON  
K ARR  
606 2 L T 8 ALLISON  
K ARR  
613 1 K ARR  
623 1 L F 8 TRIPPY  
633 5 L M 8 TAYLOR  
K ARR  
643 1 L S 8 KOLAS  
646 1 K ARR  
649 1 K ARR  
653 1 K ARR  
663 1 K ARR  
673 2 L W 8 WALLACE  
K ARR  
683 2 K ARR  
686 2 K ARR  
70n.01 1-15 SK ARR ALLISON

70n.02 1-15 SK ARR WILLIAMS  
70n.03 1-15 SK ARR WILSON  
70n.04 1-15 SK ARR BOUCHER  
70n.05 1-15 SK ARR KOLAS  
70n.06 1-15 SK ARR WILSON  
70n.07 1-15 SK ARR PETTIT  
70n.08 1-15 SK ARR MCCONNELL  
70n.09 1-15 SK ARR MELFI  
70n.10 1-15 SK ARR WILSON  
785 5 B ARR PERMAR  
793 1-05 B ARR WILSON  
795 1 S ARR  
999 I ARR

Economics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201 5 L M W F 8  
R T T 8  
R T T 9  
R T T 10  
R T T 11  
R T T 12  
R T T 1  
R T T 2  
R T T 3  
L M W F 3  
R T T 8  
R T T 9  
R T T 10  
R T T 11  
R T T 12  
R T T 1  
R T T 2  
R T T 3  
R T T 4  
L M W F 3  
R T T 8  
R T T 9  
R T T 10  
R T T 11  
R T T 12  
R T T 1  
R T T 2  
R T T 3  
R T T 4  
D M W 7 - 915P  
402 5 D MTWTF 8  
D MTWTF 9  
D MTWTF 10  
D MTWTF 11  
D MTWTF 12  
D MTWTF 2  
D MTWTF 3

## Economics (Cont'd)

442	5	L	MTW F	9	
		L	MTW F	11	
		L	MTW F	12	
		L	MTW F	1	
		L	MTW F	2	
		B	M	12	- 2
		B	M	2	- 4
		B	T	10	-12
		B	T	12	- 2
		B	T	2	- 4
		B	W	12	- 2
		B	W	2	- 4
		B	T	8	-10
		B	T	10	-12
		B	T	12	- 2
		B	T	2	- 4
		B	F	10	-12
		B	F	12	- 2
501	3	D	M W F	2	
520	4	L	M W F	9	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
		L	M W F	2	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	
530	4	L	M W F	10	
		R	T	10	
		R	T	2	
		R	T	10	
		R	T	2	
		L	M W F	1	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
553	3	D	M W F	10	HARRISON
570	5	D	MTWTF	9	
580	4	L	M W F	11	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	
		L	M W F	3	
		R	T	10	
		R	T	3	
		R	T	10	
		R	T	3	
599	1-15	C	ARR		
610	5	D	T T	9	-11
614	5	D	M W F	3	
625	3	D	M W F	10	
630	5	D	M W F	9	
640	3	D	M W F	8	NESTEL
		D	M W F	2	
644	3	D	M W F	9	
645	5	D	M W F	130- 3	
656	5	D	MTWTF	1	COONS
676	4	D	MTWT	11	
679	3	D	M W F	1	SHERMAN
680	3	D	M W F	11	BOWERS
683	5	D	M W F	10	MILLER
693	1-05	C	ARR		
694	1-05	D	ARR		
800	2	D	W	5	- 7
805	5	D	MTW F	11	
		D	MTW F	3	

806	3	D	M W	3	- 415
809	5	D	M W	3	- 5
848	2	D		ARR	
852	3	D	M W	5	- 615
860	3	D	M W F	1	JAMES
899	1-05	D		ARR	
998	3	D		ARR	CONDOIDE
999		I		ARR	

## WINTER QUARTER

201	5	D	MTWTF	8	
		D	MTWTF	10	
		L	M W F	10	
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		L	M W F	3	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		R	T T	4	
		D	MTWTF	3	
402	5	L	M W F	8	
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		L	M W F	1	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	M W	7	- 915P
442	5	L	MTW F	9	
		L	MTW F	11	
		L	MTW F	12	
		L	MTW F	2	
		B	T	10	-12
		B	T	12	- 2
		B	T	2	- 4
		B	T	8	-10
		B	T	10	-12
		B	T	12	- 2
		B	T	2	- 4
		B	F	10	-12
501	3	D	M W F	11	
502	3	D	M W F	2	
506	3	D	M W F	11	BOWERS
512	3	D	M W F	10	HARRISON
520	4	L	M W F	9	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
		L	M W F	2	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	



53n	4	L	M W F	10	
		R	T	10	
		R	T	2	
		R	T	10	
		R	T	2	
		L	M W F	1	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
56n	3	D	M W F	9	
58n	4	L	M W F	11	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	
		L	M W F	3	
		R	T	10	
		R	T	3	
		R	T	10	
		R	T	3	
599	1-15	C		ARR	
613	5	D	M W	3 - 5	WALTON
641	3	D	M W F	8	NESTEL
		D	M W F	2	
651	3	D	M W F	2	WARNE
663	5	D	MTWTF	1	CONDOIDE
665	5	D	MTWTF	10	JAMES
67n	3	D	M W F	3	RASKIND
676	4	D	MTWT	11	
683	5	D	M W F	2	
684	3	D	M W F	9	
69n	3	D	M W F	3	
693	1-05	C		ARR	
694	1-05	D		ARR	
801	5	D	M W F	11 -1215	PATTON
803	3	D	M W F	2	PATTON
806	3	D	T T	11 -1215	
		D	M W	3 - 415	
81n	3	D	W	3 - 5	
82n	3	D	M W	3 - 415	
83n	3	D		ARR	
848	2	D	M	4 - 6	
852	3	D	M W F	3	
		D	M W	5 - 615	
871	3-05	D	T T	1 - 3	SHERMAN
88n	3	D	T T	830-1000	MILLER
899	1-05	D		ARR	
999	I			ARR	

SPRING QUARTER

201	5	L	M W F	8	
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		D	MTWTF	9	
		D	MTWTF	10	
		L	M W F	1	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	

		R	T T	2	
		R	T T	3	
		R	T T	4	
		D	MTWTF	2	
		D	M W	7 - 915P	
402	5	D	MTWTF	9	
		L	M W F	12	
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	MTWTF	2	
442	5	L	MTW F	9	
		L	MTW F	10	
		L	MTW F	11	
		L	MTW F	1	
		L	MTW F	2	
		B	M	2 - 4	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	W	12 - 2	
		B	W	2 - 4	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	F	10 -12	
		B	F	12 - 2	
50n	3	D	M W F	2	HARRISON
502	3	D	M W F	11	
52n	4	L	M W F	9	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
		L	M W F	2	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	
		D	MTW F	11	
		D	MTW F	3	
53n	4	L	M W F	10	
		R	T	10	
		R	T	2	
		R	T	10	
		R	T	2	
		L	M W F	1	
		R	T	9	
		R	T	1	
		R	T	9	
		R	T	1	
56n	3	D	M W F	11	
57n	5	D	MTWTF	1	
58n	4	L	M W F	11	
		R	T	11	
		R	T	2	
		R	T	11	
		R	T	2	
		L	M W F	3	
		R	T	10	
		R	T	3	
		R	T	10	
		R	T	3	
		D	MTWT	9	
599	1-15	C		ARR	
642	3	D	M W	3 - 415	
655	3	D	M W F	1	FLEISHER
666	3	D	M W F	10	JAMES
672	3	D	M W F	9	
677	4	D	MTW F	1	
68n	3	D	M W F	9	BOWERS
684	3	D	M W F	3	
688	5	D	M W F	10	PARNES

**Economics    (Cont'd)**

693	1-05	C	ARR	
694	1-05	D	ARR	
698	5	D	MTWTF	9      CONDOIDE
802	3	D	M W F	11
805	5	D	MTW F	3
807	3	D	ARR	TYBOUT
808	5	D	M W	3 - 5
811	3	D	ARR	HARRISON
821	3	D	M W F	10
848	2	D	ARR	
851	2	D	T	2 - 4      COONS
852	3	D	M W	5 - 615
881	3	D	ARR	
882	3	D	W	4 - 6      BOWERS
899	1-05	D	ARR	
999		I	ARR	

**Education**

No.      Crd't.    Sec.      Day      Time      Instructor

**AUTUMN QUARTER**

10		B	MTW F	8	HANNA
108	3	L	M W	8	RICCIO
		L	M W	5	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	1	
		R	T	2	
		R	T	3	
		R	T	4	
		R	T	5	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
		R	F	12	
120	4	B	MTWTF	10 -12	RAY
210	4	B	MTWT	1 - 3	HAGER
232	4	B	MTWTF	10 -12	BLUM
234	4	B	MTWTF	4 - 6	
235	4	B	MTWTF	2 - 4	HAWS
242	3	D	T T	8 -10	BLUM
243	5	B	MTWTF	8 -10	
		B	MTWTF	12 - 2	
		B	MTWTF	2 - 4	
		B	MTWTF	4 - 6	
251	3-06	W	ARR		
255	4	B	MTWTF	8 -10	
289.04	3	S	M W F	9 -12	BLUM
289.05	3	S	ARR		MEHL

289.06	2-05	S	T	3	MAND
		S	W	4	MAND
289.07	2-05	S	T	3	MAND
		S	W	4	MAND
289.08	2-05	S		ARR	ALLENBAUGH
289.09	2-05	S		F 11	LEWIS
		B		ARR	LEWIS
425	4	B	MTWTF	4 - 6	
430	4	B	MTWTF	10 -12	
433	3	B	T T	2 - 4	
435	5	D	MTWT	8 -10	DUNCAN
		D	MTWT	10 -12	DUNCAN
		D	MTWT	12 - 2	DUNCAN
		D	MTWT	2 - 4	DUNCAN
442	3	D	M W F	3	LEWIS
		B	S 9	-11	LEWIS
460	4	L	M	8 -10	STROM
		B 5	ARR		STROM
		R	T	8 -10	STROM
		R	T	10 -12	STROM
		R	W	8 -10	STROM
		R	T	10 -12	STROM
		R	F	8 -10	STROM
		B	T	8 -12	STROM
		B	T	8 -12	STROM
		L 5	T	7 - 9	P
		L 5	T	7 - 9	P
461	3	D	W F	8 - 930	
		D	W F	930-11	LOOMIS
		D	W F	11 -1230	
467	3	D	M W F	9	KOSTE
		D	M W	4 - 530	
		D	T T	11 -1230	
		D	T T	12 - 130	KOSTE
		D	T T	1230- 2	
		D	T T	130- 3	
		D	T T	430- 6	
501	3	D	M W	430- 6	
		D	W F	3 - 430	
502	3	D	M W F	9	HARDING
		D	M W F	10	HARDING
		D	M W F	11	HARDING
		D	T T	12 - 130	STULL
		D	T T	130- 3	STULL
		D	T T	4 - 530	STULL
508	4	L	M W	8 -10	TOMLINSON
		B	T T	8 -12	TOMLINSON
		L	M W	10 -12	TOMLINSON
		B	T T	8 -12	TOMLINSON
		L	T T	8 -10	TEWKSBURY
		B	M W	8 -12	TEWKSBURY
		L	T T	10 -12	TEWKSBURY
		B	M W	8 -12	TEWKSBURY
		L	T T	10 -12	KOSTE
		B	M W	8 -12	KOSTE
		L	T T	2 - 4	LOOMIS
		B	ARR		
511	4	L	M W	8 -10	RAMSEY
		B	F	8	
		L	M W	1 - 3	RAMSEY
		B	F	1	
		L	M W	430- 630	
		B	F	430	
		L	T T	8 -10	
		B	F	9	
		L	T T	10 -12	LANGUIS
		B	F	11	
		L	T T	1 - 3	LANGUIS
		B	F	2	
513	4	L	M W	8 -10	
		L	M W	10 -12	
		L	T T	8 -10	
		L	T T	10 -12	
		L	T T	12 - 2	KING
520	2	B	M T	3	WELLS
521	2	B	W F	3	WELLS
524	3	D	M W F	4	WELLS



526	4	D	T T	9 -11	MUESSIG
		D	T T	10 -12	GILLIOM
532	3	D	T	7 - 930P	RAY
540.C	4	D		ARR	
546	4	D	MTWT	2	OSBORNE
551	4	B	MTWTF	8	
		B	MTWTF	9	
556	4	D	MTWT	9	LEWIS
560	4	D	MTWT	2	
		D	MTWT	3	
561	4	D	MTWT	2	
		D	MTWT	3	
575	3-06	D		ARR	REESE
585.10	6	W		ARR	MILLER
585.10	12	W	MTWTF	8 -12	MILLER
		W	T T	1 - 430	MILLER
585.10	15	W	MTWTF	8 - 430	MILLER
585.11	6	W		ARR	MILLER
586.03	3-07	W	T	5 - 7 P	MITCHELL
586.7	3-07	W	T	7 - 930P	COATES
586.08	3-07	W	T	4 - 6	ALLENBAUGH
586.14	3-07	W	W	2	BENNER
586.15	3-07	W	T	4	BONNEY
587.03	3-15	W	T	5 - 7	BARKAN
587.07	3-15	W	T	7 - 930P	COATES
587.08	3-15	W	T	4 - 6	SCHROEDER
587.09	3-15	W	W	4 - 630	LEWIS
587.15	3-08	W	M W	4	RAMSEY
587.16	3-15	W		ARR	
587.17	3-15	W		ARR	
587.18	3-15		M	ARR	
587.19	3-15	W		ARR	
587.20	3-15	W		ARR	
587.21	3-15	W	W	4	
587.22	3-15	W		ARR	REESE
587.23	3-15	W	T	3 - 5	WELLS
587.24	3-15	W		ARR	COATES
587.25	3-15	W	W	4 - 6	ZIDONIS
		W	W	4 - 6	
		W	W	4 - 6	
587.26	3-15	W	W	4 - 6	OSBORNE
587.27	3-15	W	W	7 - 930P	SCHLESSINGER
587.28	3-15	W	W	4 - 6	JEWETT
587.29	3-15	W	T	3 - 5	LOGAN
588.04	3-15	W	T	9 -12	BLUM
588.09	3-15	W	W	4 - 630	LEWIS
588.30	3-15	W		ARR	
588.32	3-15	W	T	4 - 630	AMOS
608	2-05	W		ARR	LOGAN
612	3	D	M	7 - 930P	ZIDONIS
613	3	D	T T	4 - 530	
		D	T T	4 - 530	
616.A	4	D	TWTF	12	
		D	TWTF	4	ALLEN

616.B	4	D	MTWT	12	OTTO
		D	TWTF	3	ALLEN
617	4	D	T T	430- 630	OTTO
621	4	D	MTWT	8	CROSSWHITE
622	3	D	W	7 - 930P	OSBORNE
624	3	D	M	7 - 930P	JEWETT
625	3	B	M W F	10 -12	HOWE
		B	M W F	1 - 3	HOWE
632	4	D	MTWT	8	
		D	MTWT	9	
		D	MTWT	10	
		D	MTWT	11	
		D	MTWT	12	
		D	MTWT	1	
		D	MTWT	2	
		D	MTWT	3	
636	4	D	T	7 - 930P	MEHL
		D	T	7 - 930P	MEHL
637	3	L	M W	11	MACCIA
		L	M W	12	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	12	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
		R	F	12	
649	3	D	M	6 - 830P	REESE
652	3	D	T	7 - 930P	CAVIN
655	3	D	W	7 - 930P	CAVIN
659	3	D	T	4 - 630	CRAWFORD
660	3	D	W	4 - 630	CRAWFORD
662	3	D	T	9 -12	CRAWFORD
666	3	D	T	4 - 630	HUNT
672	3	D	T	7 - 930P	
675	3	D	T T	2 - 4	
		D	T T	4 - 6	
677	3	D	M W	2 - 4	TYLER
690	3	S		ARR	
693.09	1-04	I		ARR	LEWIS
693.10	1-04	I		ARR	
693.21	1-04	I		ARR	
693.22	1-04	I		ARR	REESE
693.23	1-04	I		ARR	HANNA, WELLS
693.25	1-04	I		ARR	EBERHART
693.26	1-04	I		ARR	
693.27	1-04	I		ARR	
693.28	1-04	I		ARR	JEWETT
693.29	1-04	I		ARR	LOGAN
693.33	1-04	I		ARR	HENDRICKSON
693.34	1-04	I		ARR	
693.35	1-04	I		ARR	
693.40	1-04	I		ARR	MEHL
693.41	1-04	I		ARR	KIRCHER
693.43	1-04	I		ARR	TYLER
693.44	1-04	I		ARR	
693.45	1-04	I		ARR	

Education (Cont'd)

693.46	1-04	I		ARR		
693.47	1-04	I		ARR		
693.48	1-04	I		ARR		
693.49	1-04	I		ARR		
710	3-05	W		ARR		
717	3	D	W	7 - 930P	HUNT	
723	3	D	T	7 - 930P	SANDERS	
800	3	D	T	7 - 930P	HANNA	
807	3	D	W	7 - 930P	LOGAN	
811	3	B	T	7 - 930P	LANGUIS	
812	3	D	M	7 - 930P	STULL	
817	3	D	T	4 - 630	HUCK	
818	3	D	W	7 - 930P	FRAZIER	
827	3	D	M	7 - 930P	KING	
834	3	D	W	7 - 930P	LUX	
842	3	D	T T	4 - 530	TRIMBLE	
858	3	D	T	7 - 930P	BARGAR	
		D	T	4 - 630	NORTON	
859	3	D	T	4 - 630	ALBERTY	
860	3	D	M	7 - 930P	KLOHR	
861	3	D	T	7 - 930P	FRAZIER	
862	3	D	W	4 - 630	FRYMIER	
863	3	D	T	7 - 930P	ARISMAN	
864	3	D	T	4 - 630	DUNCAN	
870	4	S	M	5 - 9 P	FRAZIER	
873	3	S	W	7 - 930P	FRYMIER	
874	3	D	M W F	9	PETERS	
		D	T	4 - 630	RICCIO	
875	3	S	M	7 - 930P	KEMP	
876	3	D	S	9 - 11	RICCIO	
877	3	D	T	7 - 930P	KEMP	
879	4	D	W	7 - 930P	PETERS	
881.A	3	I	T	7 - 930P	WIGTIL	
881.B	3	I	M	3 - 7 P		
881.C	3	I	T	4 - 6 P	WIGTIL	
899	1-05	S	T	7 - 930P	HACK	
911	3	D	T	7 - 930P		
913	3	D	W	4 - 630	KIRCHER	
925.09	2-05	S	T	7 - 930P	LEWIS	
		S	T T	1 - 3	BROOKS	
925.10	2-05	S	T	3 - 5	HUCK, KING	
		S	W	4 - 6	TOMLINSON	
		S	W	4 - 6	RAMSEY	
		S	W	4 - 630	HARDING	
925.21	2-05	S	W	7 - 930P		
925.25	2-05	S	T	7 - 9 P	ZIDONIS	
925.26	2-05	S	W	3 - 5	TRIMBLE	
925.27	2-05	S	W	3 - 5	SHRUM	
		S	T	3 - 5	RICHARDSON	
925.28	2-05	S	T	7 - 930P	MUESSIG	
925.29	2-05	S		ARR	LOGAN	

925.34	2-05	S	T	7 - 930P		
925.35	2-05	S	T	9 - 1130		
925.36	2-05	S	T	9 - 1130	COTTRELL	
925.41	2-05	S	M	7 - 930P	MACCIA	
925.43	2-05	S	M	730- 930	TYLER	
925.44	2-05	S		ARR	LAUGHLIN	
925.45	2-05	S		ARR	PIMSLEUR	
925.46	2-05	S		ARR	DALE	
925.48	2-05	S		ARR		
925.49	2-05	S	T F	9 - 12	DUNCAN	
				4 - 6	KLOHR	
928	3	D	M	7 - 930P	MEHL	
934	3	D	T	7 - 930P		
939	3	D	T T	2 - 330	FRANKIE	
940	3	D	T T	2 - 330	BURNETT	
941	5	D	T T	10 - 12	KIRCHER	
		D	T T	61 HR ARR	KIRCHER	
943	3	D	T T	10 - 1130	BURNETT	
944	5	D	M W	10 - 1130	COTTRELL	
946	3	D	T T	4 - 530	STAUB	
		D	W	7 - 930P	LARMEE	
947	3	D	M	7 - 930P	ANDERSON	
953	3	D	T	7 - 930P	STAUB	
954	3	D	M	7 - 930P	LAUGHLIN	
955	3	D	T T	4 - 530	LARMEE	
956	3	D	T	7 - 930P	HACK	
959	4	S	W	1 - 4	ANDERSON	
968	3	D	T T	4 - 530	NOVAK	
999		I		ARR		

WINTER QUARTER

11		B	MTW F	8	HANNA	
12		B	MTW F	9	HANNA	
		B	MTW F	11	HANNA	
108	3	L	M W	8	RICCIO	
		L	M W	5	RICCIO	
		R	T	8		
		R	T	9		
		R	T	10		
		R	T	11		
		R	T	1		
		R	T	2		
		R	T	3		
		R	T	4		
		R	T	5		
		R	F	8		
		R	F	9		
		R	F	10		
		R	F	11		
		R	F	12		
120	4	B	MTWTF	10 - 12	RAY	
211	4	B	MTWT	1 - 3	HAGER	
231	4	B	MTWTF	10 - 12	BLUM	
233	4	B	MTWTF	4 - 6		
243	5	B	MTWTF	8 - 10		
		B	MTWTF	12 - 2		
		B	MTWTF	2 - 4		
		B	MTWTF	4 - 6		
246	4	B	MTWTF	2 - 4	HAWS	
251	3-06	W		ARR		



255	4	B	MTWTF	8	-10	
		B 2	MTWTF	10	-12	
289.04	3	S	M W F	9	-12	BLUM
289.05	3	S		ARR		MEHL
289.06	2-05	S	T	3		MAND
		S	W	4		MAND
289.07	2-05	S	T	3		MAND
		S	W	4		MAND
289.08	2-05	S		ARR		ALLENBAUGH
289.09	2-05	S	F	11		LEWIS
		B	ARR			LEWIS
420	4	B	MTWTF	10	-12	
424	4	B	MTWTF	4	- 6	
435	5	D	MTWTF	8	-10	DUNCAN
		D	MTWTF	10	-12	DUNCAN
		D	MTWTF	12	- 2	DUNCAN
		D	MTWTF	2	- 4	DUNCAN
442	3	D	M W F	3		LEWIS
		B	S	9	-11	LEWIS
460	4	L	M	8	-10	STROM
		B	W F	8	-12	STROM
		R	T	8	-10	STROM
		R	T	10	-12	STROM
		R	W	8	-10	STROM
		R	W	10	-12	STROM
		R	T	8	-10	STROM
		R	T	10	-12	STROM
		R	F	8	-10	STROM
		R	F	10	-12	STROM
461	3	D	T T	8	- 930	
		D	T T	930-11		
		D	T T	11	-1230	LOOMIS
		D 5	T T	430- 6		
467	3	D	M W F	9		KOSTE
		D	W F	2	- 330	
		D	W F	330- 5		
		D	W	7	- 930P	RAMSEY
		D	T T	12	- 130	KOSTE
		D	T T	130- 3		
501	3	D	T T	10	-12	MILLER
502	3	D	M W F	9		HARDING
		D	M W F	10		HARDING
		D	M W F	11		HARDING
		D	M W F	2		HARDING
		D	T T	1	- 230	STULL
		D	T T	230- 4		STULL
		D	T T	430- 6		STULL
508	4	L	M W	8	-10	
		B	T T	8	-12	
		L	M W	10	-12	LOOMIS
		B	T T	8	-12	
		L	T T	8	-10	
		B	M W	8	-12	
		L	T T	10	-12	KOSTE
		B	M W	8	-12	KOSTE
		L	T T	10	-12	TEWKSBURY
		B	M W	8	-12	TEWKSBURY
		L	T T	2	- 4	TEWKSBURY
		B	ARR			TEWKSBURY
511	4	L	M W	10	-12	RAMSEY
		B	F	11		
		L	M W	1	- 3	RAMSEY
		B	F	2		
		L	M W	3	- 5	
		B	F	3		
		L	T T	8	-10	LANGUIS
		B	F	8		
		L	T T	10	-12	LANGUIS
		B	F	10		
		L	T T	1	- 3	LANGUIS
		B	F	1		
513	4	L	M W	8	-10	
		L	M W	10	-12	HUCK
		L	T T	8	-10	
		L	T T	10	-12	
		L	T T	12	- 2	KING
523	3	D	M W F	3		HANNA

526	4	D	T T	9	-11	MUESSIG
		D	T T	10	-12	GILLIOM
		D	T T	2	- 4	MUESSIG
529	3	D	M W F	3		LOGAN
533	3	D	T	7	- 930P	LUX
540.A	4	D	T T	430-	630	
540.B	4	D	T T	430-	630	OTTO
546	4	D	MTWT	9		OSBORNE
551	4	B	MTWTF	8		
		B	MTWTF	9		
560	4	D	MTWT	2		EBERHART
		D	MTWT	3		EBERHART
561	4	D	MTWT	2		
		D	MTWT	3		
575	3-06	D		ARR		REESE
585.10	6	W		ARR		MILLER
585.10	12	W	MTWTF	8	-12	MILLER
		W	T T	1	- 430	MILLER
585.10	15	W	MTWTF	8	- 430	MILLER
585.11	6	W		ARR		MILLER
586.03	3-07	W	T	5	- 7 P	MITCHELL
586.07	3-07	W	T	7	- 930P	COATES
586.08	3-07	W	T	4	- 6	SCHROEDER
586.14	3-07	W		2		BENNER
586.15	3-07	W	T	4		BONNEY
587.03	3-15	W	T	5	- 7 P	BARKAN
		W	ARR			BARKAN
587.07	3-15	W	T	7	- 930P	COATES
587.08	3-15	W	T	4	- 6	SCHROEDER
587.09	3-15	W	W	4	- 630	LEWIS
587.14	3-08	W	W	3	- 5	BENNER
587.15	3-08	W	M W	4		SIMMONS
587.16	3-15	W		ARR		
587.17	3-15	W		ARR		
587.18	3-15	W		ARR		
587.19	3-15	W		ARR		
587.20	3-15	W		ARR		
587.21	3-15	W	W	4		
587.23	3-15	W	T	3	- 5	JENNINGS
587.24	3-15	W		ARR		COATES
587.25	3-15	W	W	4	- 6	ZIDONIS
587.26	3-15	W	W	4	- 6	OSBORNE
587.27	3-15	W	W	7	- 930P	SCHLESSINGER
587.29	3-15	W	T	3	- 5	LOGAN
588.04	3-15	W	T	9	-12	BLUM
588.09	3-15	W	W	4	- 630	LEWIS
588.30	3-15	W				
588.32	3-15	W	T	4	- 630	AMOS
606	3	D	W	7	- 930P	LOGAN
608	2-05	W		ARR		LOGAN
612	3	D	M	4	- 630	ZIDONIS
613	3	D	T T	4	- 530	
		D	T	7	-10 P	

## Education (Cont'd)

614	3	S	T	7	-10	P		
616.C	4	D		ARR				
616.D	4	D		ARR				
618	3	D	M W F	9			MORFORD	
621	4	D	MTWT	2			LAZAR	
624	3	D		S 9	-1130		JEWETT	
625	3	B	M W F	10	-12		HOWE	
626	3	B	T T	10	-12		SHRUM	
		B		S 8	-12		SHRUM	
627	3	B	M W F	1	- 3		SCHLESSINGER	
631	4	D	MTWT	9			LEWIS	
632	4	D	MTWT	8				
		D	MTWT	9				
		D	MTWT	10				
		D	MTWT	11				
		D	MTWT	12				
		D	MTWT	1				
		D	MTWT	2				
		D	MTWT	3				
636	4	D	T	7	- 930P		MEHL	
		D	T	7	- 930P		MEHL	
637	3	L	M W	11			MACCIA	
		L	M W	2				
		R	T	8				
		R	T	9				
		R	T	10				
		R	T	11				
		R	T	12				
		R	F	8				
		R	F	9				
		R	F	10				
		R	F	11				
		R	F	12				
652	3	D	T	7	- 930P		CAVIN	
653	3	D	T	7	- 930P		CAVIN	
654	3	D	W	7	- 930P		CAVIN	
661	3	D	W	4	- 630		CRAWFORD	
663	3	D	T	4	- 630		CRAWFORD	
665	3	D	M	7	- 930			
667	3	D	T	4	- 630		HUNT	
668	3	D	T	4	- 630		HUNT	
672	3	D	T	7	- 930			
673	3	D		S 9	-1130			
675	3	D	T T	2	- 4			
		D	T T	4	- 6			
69n	3	S		ARR				
693.09	1-04	I		ARR			LEWIS	
693.10	1-04	I		ARR				
693.21	1-04	I		ARR				
693.22	1-04	I		ARR			REESE	
693.23	1-04	I		ARR			HANNA, WELLS	
693.25	1-04	I		ARR			EBERHART	
693.26	1-04	I		ARR				
693.27	1-04	I		ARR				
693.28	1-04	I		ARR			GILLIOM	
693.29	1-04	I		ARR			LOGAN	
693.33	1-04	I		ARR			HENDRICKSON	
693.34	1-04	I		ARR				
693.35	1-04	I		ARR				
693.40	1-04	I		ARR			MEHL	
693.41	1-04	I		ARR			KIRCHER	
693.43	1-04	I		ARR			TYLER	
693.44	1-04	I		ARR				
693.45	1-04	I		ARR				
693.46	1-04	I		ARR				
693.47	1-04	I		ARR				
693.48	1-04	I		ARR				
693.49	1-04	I		ARR				
71n	3-05	W		ARR				
713	4	D	T	4	- 630		CRAWFORD	
724	3	D	T	7	- 930P		SUTTON	
802	3	D	T	7	- 930P		JENNINGS	
813	3	D	W	7	- 930		KING	
815	3	D	W	4	- 630		TOMLINSON	
819	3	D	T	7	- 930P		TOMLINSON	
828	3	D	T	4	- 630		HUCK	
833	3	D	W	7	- 830P		RAY	
839.A	3	D		ARR			ALLEN	
841	3	D	M W F	10			LAZAR	
843	3	D	T T	4	- 530		TRIMBLE	
85n	4	D	T T	2	- 4		RICHARDSON	
858	3	D	T	7	- 930P			
		D	T	4	- 630		BARGAR	
86n	3	D	T	7	- 930P		ALBERTY	
861	3	D	W	7	- 930P		KLOHR	
862	3	D	T	4	- 630		FRYMIER	
865	3	D	M W	2	- 330		KLOHR	
867	3	D	T	7	- 930P		DUNCAN	
869	3	D	W	4	- 630		DUNCAN	
871	4	S	M	5	- 9 P		FRYMIER	
874	3	D	T	4	- 630		RICCIO	
875	3	S	M W	11	-1230		KEMP	
		S	M	7	- 930P		KEMP	
876	3	D		S 9	-11		RICCIO	
878	3	D	T	7	- 930P		KEMP	
879	5	D	T	7	- 930P		PETERS	
88n	3	D	T	7	- 930P			
881.A	3	I	M W F	8			WIGTIL	
881.B	3	I	M	3	- 7 P		WIGTIL	
881.C	3	I	T	4	- 6		WIGTIL	
912	3	D	T	7	- 930P			
917	3	D	M	4	- 630		KIRCHER	
925.09	3-05	S	T	7	- 930P		LEWIS	
		S	T	1	- 3		BROOKS	
925.10	3-05	S		ARR			TOMLINSON	
925.21	3-05	S	W	7	- 930P			
925.22	2-05	S	M	6	- 830P		REESE	
925.25	2-05	S	T	7	- 9 P		EBERHART	



925.26	2-05 S	T	3 - 5	CROSSWHITE
	S		ARR	
925.27	2-05 S	W	3 - 5	SCHLESSINGER
925.28	2-05 S	T	7 - 930P	JEWETT
925.34	2-05 S	T	4 - 630	
925.35	2-05 S	T	9 -1130	FRANKIE
925.36	2-05 S	T	9 -1130	OPENSHAW
925.40	2-05 S		ARR	MEHL
925.41	2-05 S	W	7 - 930P	
925.43	2-05 S	M	730- 930P	TYLER
925.44	2-05 S		ARR	ANDERSON
925.47	2-05 S	W	3 - 5	
925.48	2-05 S		ARR	
925.49	2-05 S	T	4 - 6	ALBERTY
925.50	2-05 S	T	7 - 930P	BLANKE
927	3 D	M W	4 - 530	SUTTON
932	3 D	T	7 - 930P	
939	3 D	T T	2 - 330	BURNETT
941	5 D	T T	10 -12	KIRCHER
	D		61 HR ARR	KIRCHER
942	3 D	T T	10 -1130	FRANKIE
946	3 D	T T	4 - 530	LARMEE
947	3 D	M	7 - 930P	ANDERSON
948	3 D	W	7 - 930P	STAUB
949	2-03 D	W	7 - 930P	LAUGHLIN
951	3 D	T	7 - 930P	LARMEE
952	3 D	T T	4 - 530	STAUB
957	3 D	M	7 - 930P	HACK
958	3 D	M	430- 630	CONRAD
964	4 S	W	1 - 4	HACK
964	4 D	M W F	11	NORTON
	B		11 HR ARR	NORTON
974	3 D	T	7 - 930P	ZIDONIS
999	I		ARR	

## SPRING QUARTER

13		B	MTW F	9		HANNA
		B	MTW F	11		HANNA
108	3	L	M W	8		RICCIO
		L	M W	5		RICCIO
		R	T	8		
		R	T	9		
		R	T	10		
		R	T	11		
		R	T	1		
		R	T	2		
		R	T	3		
		R	T	4		
		R	T	5		
		R	F	8		
		R	F	9		
		R	F	10		
		R	F	11		
		R	F	12		
12n	4	B	MTWTF	10	-12	RAY
212	4	B	MTWT	1	- 3	HAGER
232	4	B	MTWTF	10	-12	BLUM
234	4	B	MTWTF	4	- 6	

235	4	B	MTWTF	2 - 4	HAWS
242	3	D	T T	8 -10	BLUM
243	5	B B B B	MTWTF MTWTF MTWTF MTWTF	8 -10 12 - 2 2 - 4 4 - 6	
251	3-06	W		ARR	
255	4	B	MTWTF	8 -10	
289.02	2-15	S		ARR	
289.04	3	S	M W	9 -12	BLUM
289.05	3	S S		ARR ARR	MEHL MEHL
289.06	2-05	S S	T W	3 4	MAND MAND
289.07	2-05	S S	T W	3 4	MAND MAND
289.08	2-05	S		ARR	ALLENBAUGH
289.09	2-05	S B	F	11 ARR	LEWIS LEWIS
425	4	B	MTWTF	4 - 6	
430	4	B	MTWTF	10 -12	
433	3	B	T T	2 - 4	
435	5	D D D D	MTWTF MTWTF MTWTF MTWTF	8 -10 10 -12 12 - 2 2 - 4	DUNCAN DUNCAN DUNCAN DUNCAN
442	3	D B	M W F S	3 9 -11	LEWIS LEWIS
460	4	L B R R R R	M W F T W T F	8 -10 8 -12 8 -10 8 -10 8 -10 8 -10	STROM STROM STROM STROM STROM STROM
461	3	D D D	T T T T T T	8 - 930 930-11 11 -1230	LOOMIS
467	3	D D D D D D	M W F W F W F T T T T T T	9 2 - 330 330- 5 12 - 130 130- 3 330- 5	KOSTE KOSTE
501	3	D	T T	8 -10	MILLER
502	3	D D D D D D	M W F M W F M W F T T T T T T	9 10 11 1 - 230 230- 4 430- 6	HARDING HARDING HARDING STULL STULL STULL
507	3	D	T T	2 - 330	KING
508	4	L B L B L B L B L B	M W T T M W T T T T M W T T M W T T ARR	8 -10 8 -12 10 -12 8 -12 10 -12 8 -12 10 -12 8 -12 3 - 5	LOOMIS TOMLINSON TOMLINSON KOSTE KOSTE TEWKSBUARY TEWKSBUARY TEWKSBUARY TEWKSBUARY
511	4	L B L B L B L B L B	M W F M W F M W F T T F T T F T T F	8 -10 8 1 - 3 1 430- 630 430 8 -10 9 10 -12 11 1 - 3 2	RAMSEY LANGUIS LANGUIS LANGUIS

## Education (Cont'd)

513	4	L	M W	8 -10		
		L	M W	10 -12		
		L	T T	8 -10		
		L	T T	12 - 2		
526	4	D	T T	9 -11	MUESSIG	
		D	T T	10 -12	GILLIOM	
		D	T T	2 - 4	GILLIOM	
534	3	D	T	7 - 930P	LUX	
54n.A	4	D	T T	430- 630		
54n.B	4	D	T T	430- 630	OTTO	
546	4	D	MTWT	10		
551	4	B	MTWTF	8		
		B	MTWTF	9		
556	4	D	MTWT	10	LEWIS	
56n	4	D	MTWT	2	EBERHART	
		D	MTWT	3	EBERHART	
561	4	D		35		
		D	MTWT	3		
575	3-06	D		ARR	REESE	
585.10	6	W		ARR	MILLER	
585.10	12	W	MTWTF	8 -12	MILLER	
		W	T T	1 - 430	MILLER	
585.10	15	W	MTWTF	8 - 430	MILLER	
585.11	6	W		ARR	MILLER	
586.03	3-07	W	T	5 - 7 P	MITCHELL	
		W		ARR	MITCHELL	
586.07	3-07	W	T	7 - 930P	COATES	
586.08	3-07	W	W	4 - 6	SCHROEDER	
586.14	3-07	W	W	2	WILSON	
586.15	3-07	W	T	4	BONNEY	
587.03	3-15	W	T	5 - 7 P	BARKAN	
		W		ARR	BARKAN	
587.07	3-15	W	T	7 - 930P	COATES	
587.08	3-15	W	M	4 - 6	SCHROEDER	
587.09	3-15	W	W	4 - 630	LEWIS	
587.14	3-08	W	W	3 - 5	WILSON	
587.15	3-08	W	M W	4	SIMMONS	
587.16	3-15	W		ARR		
587.17	3-15	W		ARR		
587.18	3-15	W		ARR		
587.19	3-15	W		ARR		
587.20	3-15	W		ARR		
587.21	3-15	W	W	4		
587.22	3-15	W		ARR	REESE	
587.23	3-15	W	T	3 - 5	WELLS	
587.24	3-15	W		ARR	COATES	
587.25	3-15	W	W	4 - 6	ZIDONIS	
587.26	3-15	W	W	4 - 6	LAZAR	
587.27	3-15	W	W	7 - 930P	SCHLESSINGER	
587.28	3-15	W	W	4 - 6	JEWETT	
587.29	3-15	W	T	3 - 5	LOGAN	
588.04	3-15	W	T	9 -12	BLUM	
588.09	3-15	W	W	4 - 630	LEWIS	
588.30	3-15	W		ARR		
588.32	3-15	W	T	4 - 630	AMOS	
601	2	D	M W F	3	HANNA	
605	3	D	M W F	3	LOGAN	
608	2-05	W		ARR	LOGAN	
612	3	D	M	7 - 930P	ZIDONIS	
613	3	D	T T	4 - 530		
621	4	D	MTWT	9	LAZAR	
625	3	B	M W F	1 - 3	HOWE	
		B	M W F	3 - 5	HOWE	
627	3	B	M W F	10 -12	SCHLESSINGER	
632	4	D	MTWT	8		
		D	MTWT	9		
		D	MTWT	10		
		D	MTWT	11		
		D	MTWT	12		
		D	MTWT	1		
		D	MTWT	2		
		D	MTWT	3		
636	4	D	T	7 - 930P	MEHL	
		D	T	7 - 930P	MEHL	
637	3	L	M W	11	KIRCHER	
		L	M W	2	MACCIA	
		R	T	8		
		R	T	9		
		R	T	10		
		R	T	11		
		R	T	12		
		R	F	8		
		R	F	9		
		R	F	10		
		R	F	11		
		R	F	12		
656	3	D	W	7 - 930P	CAVIN	
662	3	D	T	9 -12	CRAWFORD	
669	3	S	T	4 - 630	HUNT	
675	3	D	T T	2 - 4		
		D	T T	4 - 6		
677	3	D	M W	4 - 6	TYLER	
69n	3	S		ARR		
693.09	1-04	I		ARR	LEWIS	
693.10	1-04	I		ARR		
693.21	1-04	I		ARR		
693.22	1-04	I		ARR	REESE	
693.23	1-04	I		ARR	HANNA	
693.25	1-04	I		ARR	EBERHART	
693.26	1-04	I		ARR		
693.27	1-04	I		ARR		
693.28	1-04	I		ARR	MUESSIG	
693.29	1-04	I		ARR	LOGAN	
693.33	1-04	I		ARR	HENDRICKSON	
693.34	1-04	I		ARR		
693.35	1-04	I		ARR		
693.40	1-04	I		ARR	MEHL	
693.41	1-04	I		ARR	KIRCHER	
693.43	1-04	I		ARR	TYLER	
693.44	1-04	I		ARR		
693.45	1-04	I		ARR		
693.46	1-04	I		ARR		



693.47	1-04	I		ARR		
693.48	1-04	I		ARR		
693.49	1-04	I		ARR		
71n	3-05	W		ARR		
712	3	D	W	4 - 630	CRAWFORD	
714	3	D	T	4 - 630	CRAWFORD	
715	3	D	W	7 - 930P	CASSIDY	
718	3	D	W	7 - 930P	HUELSMAN	
719	3	D	W	4 - 630P	HUNT	
723	3	D	T	7 - 930P	SUTTON	
811	3	B	W	7 - 930P	RAMSEY	
814	3	D	W	4 - 630	TOMLINSON	
816	2-05	D	T	7 - 930P	COON	
817	3	D	T	7 - 930P	HUCK	
82n	3	D	M	7 - 930P	HARDING	
821	3	D	W	7 - 930P		
828	3	D	M	7 - 930P	KING	
829	3	D	W	4 - 630	FRAZIER	
835	3	D	W	7 - 930P	LUX	
839.B	3	D		ARR	ALLEN	
844	4	D	T T	4 - 6	CROSSWHITE	
845	4	D	MTWT	8	CROSSWHITE	
847	3	D	T	7 - 930P	CAVIN	
848	3	D	T T	5 - 630	CASSIDY	
849	4	D	T T	7 - 930P	SCHLESSINGER	
858	3	D	T	7 - 930P	BARGAR	
		D	T	4 - 630	NORTON	
86n	3	D	W	7 - 930P		
861	3	D	T	7 - 930P	FRAZIER	
863	3	D	W	4 - 630	ARISMAN	
864	3	D	M	7 - 930P	DUNCAN	
866	3	D	T T	2 - 330	FRAZIER	
868	3	D	T	7 - 930P	ALBERTY	
872	4	S	M	5 - 9 P	KLOHR	
874	3	D	T	7 - 930P	PETERS	
875	3	S	M W	11 -1230	KEMP	
876	3	D		S 9 -11	RICCIO	
879	5	D	T	4 - 630	PETERS	
881.A	3	I	T	7 - 930P		
881.B	3	I	M	3 - 7 P	WIGTIL	
881.C	3	I	T	4 - 6	WIGTIL	
881.E	3	I	T T	4 - 530	KEMP	
914	3	D	M	4 - 630	KIRCHER	
915	3	D	T	3 - 530	JEWETT	
916	3	D	W	1 - 330	KIRCHER	
925.09	2-05	S	T T	1 - 3	KNOWER	
925.10	2-05	S	M	1 - 3	TOMLINSON	
		S	W	4 - 6	HUCK	
			ARR		KING	
925.21	2-05	S	W	7 - 930P		
925.25	2-05	S	T	7 - 9 P	EBERHART	

925.26	2-05	S	W	3 - 5	CROSSWHITE	
925.27	2-05	S	W	3 - 5	SHRUM	
		S	T	1 - 3	RICHARDSON	
925.28	2-05	S	T	7 - 930P	JEWETT	
925.33	2-05	S	T	7 - 930P		
925.34	2-05	S	T	7 - 930P		
925.35	2-05	S	T	9 -1130	BURNETT	
		S	T	9 -1130	FRANKIE	
925.41	2-05	S	W	7 - 930		
925.43	2-05	S	M	730- 930P	TYLER	
925.44	2-05	S		ARR	LAUGHLIN	
925.45	2-05	S		ARR	ALLEN	
925.48	2-05	S	T	4 - 6	DUNCAN	
927	3	D	M W	4 - 530	SUTTON	
929	3	D	M	7 - 930P	MEHL	
931	3	D	T	7 - 930P		
94n	3	D	T T	2 - 330	BURNETT	
944	5	D	M W	10 -1130	COTTRELL	
946	3	D	M	7 - 930P	HACK	
		D	T T	4 - 530	ANDERSON	
947	3	D	M	7 - 930P	LAUGHLIN	
948	3	D	T	7 - 930P	ANDERSON	
95n	3	D	M	7 - 930P	LARMEE	
952	3	D	T	7 - 930P	STAUB	
955	3	D	W	7 - 930P	LARMEE	
956	3	D	T T	4 - 530	HACK	
961	4	S	W	1 - 4	STAUB	
965	3	D	M W F	11	STUFFLEBEAM	
967	3	D	T	4 - 630	COOK	
971	3	D	T	7 - 930P	EBERHART	
999		I		ARR		

## Electrical Engineering

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

50n	4	L	M W F	8	
		L	M W F	11	
		L	M W F	12	
		L	M W F	1	
		L	M W F	2	
		B	M	3 - 6	
		B	T	8 -11	
		B	T	12 - 3	
		B	T	3 - 6	
		B	W	3 - 6	
		B	T	12 - 3	
		B	T	3 - 6	
		B	S	9 -12	
501	4	L	M W F	9	
		L	MTW F	11	
		L	M W F	3	
		L	MTW F	4	
503	4	L	T T	5 - 7	

## Electrical Engineering (Cont'd)

504	4	L	M W T F	8	
		L	MTW F	11	
		L	M W T F	3	
		L	MTW F	4	
507	2	B	M	1 - 5	
		B	T	8 -12	
		B	T	1 - 5	
		B	W	1 - 5	
		B	T	8 -12	
		B	T	1 - 5	
		B	F	1 - 5	
		B	S	8 -12	
51n	4	L	MTW F	8	
		L	M W T F	12	
		L	MTW F	3	
512	4	L	M W	5 - 7	
		L	M W	5 - 7	
517	2	B	T	8 -12	
		B	T	1 - 5	
52n	4	L	M W F	9	
		L	M W F	10	
		L	M W F	12	
		B	M	3 - 6	
		B	T	12 - 3	
		B	T	9 -12	
		B	T	12 - 3	
54n	4	L	M W F	12	
		B	T	9 -12	
58n	1	L	T	12	
581	5	W		ARR	
62n	4	L	MTW F	9	
		L	MTW F	2	
		L	M W T F	4	
622	4	L	T T	5 - 7	
627	2	B	T	8 -12	
		B	T	1 - 5	
		B	T	8 -12	
		B	T	1 - 5	
		B	S	8 -12	
628	2	B	T	8 -12	
		B	T	1 - 5	
631	4	L	MTW F	1	
632	4	L	M W T F	8	
		L	MTW F	1	
64n	4	L	M W F	4	
		B	T	12 - 3	
		B	S	9 -12	
641	3	L	M W F	10	
		B	M W F	11	
		B	M W F	1	
		B	M W F	3	
65n	4	L	M W T F	11	
		L	M W T F	1	
		L	MTW F	3	
657	2	B	T	8 -12	
		B	T	1 - 5	
		B	T	1 - 5	
		B	S	8 -12	
66n	3	L	M W F	10	
		L	M W F	1	
		L	M W F	2	
693	1-05	I		ARR	
694	1-03	D		ARR	
70n	3	L	M W F	8	
		L	M W F	10	
71n	3	L	M W F	9	
715	3	L	M W F	2	
718	1	B	T	8 -11	

732	4	L	MTW F	12	
74n	3	L	M W F	8	
794	1-03	D		ARR	
80n	3	L	M W F	10	
		L	M W	5 - 630	
801	3	L	M W F	11	
803	3	L	M W F	3	
804	3	L	M W F	2	
81n	3	L	M W F	2	
		L	M W F	4	
815	3	L	M W F	4	
817	3	L	M W F	11	
82n	3	L	M W F	9	
83n	3	L	M W F	4	
834	3	L	M W F	9	
84n	3	L	T T	5 - 630	
86n	3	L	M W	5 - 630	
863	3	L	M W F	11	
865	3	L	M W F	1	
88n		D		ARR	
881.E	3	L		ARR	
895	1-05	S		ARR	
899	1-05	S		ARR	
999		I		ARR	

## WINTER QUARTER

50n	4	L	M W F	9	
		L	M W F	11	
		L	M W F	12	
		L	M W F	2	
		B	M	3 - 6	
		B	T	9 -12	
		B	T	12 - 3	
		B	T	3 - 6	
		B	W	3 - 6	
		B	T	8 -11	
		B	T	12 - 3	
		B	T	3 - 6	
		B	S	9 -12	
501	4	L	T T	5 - 7 P	
502	4	L	M W T F	8	
		L	MTW F	10	
		L	MTW F	12	
		L	M W T F	4	
504	4	L	T T	5 - 7 P	
507	2	B	T	8 -12	
		B	T	1 - 5	
		B	T	1 - 5	
		B	S	8 -12	
508	2	B	T	8 -12	
		B	T	1 - 5	
		B	W	1 - 5	
		B	T	8 -12	
		B	T	1 - 5	
		B	F	1 - 5	
		B	S	8 -12	
51n	4	L	M W	5 - 7 P	
511	4	L	MTW F	8	
		L	M W T F	11	
		L	M W T F	3	
52n	4	L	M W F	8	
		L	M W F	9	
		L	M W F	11	
		B	M	3 - 6	
		B	T	9 -12	



		B	W	3	- 6
		B	T	2	- 5
		B	S	9	-12
540	4	L	M W F	9	
		L	M W F	2	
		B	M	3	- 6
		B	T	12	- 3
		B	T	3	- 6
		B	S	9	-12
581	5	W		ARR	
620	4	L	M W	5	- 7
621	4	L	MTW F	9	
		L	M W F	11	
		L	M W F	3	
627	2	B	T	1	- 5
		B	S	8	-12
630	4	L	M W F	11	
		L	MTW F	12	
		L	MTW F	1	
632	4	L	MTW F	2	
641	3	L	M W F	4	
642	3	L	M W F	8	
		L	M W F	12	
		L	M W F	4	
647	2	B	T	8	-12
		B	T	1	- 5
		B	T	8	-12
		B	T	1	- 5
		B	S	8	-12
650	4	L	MTW F	1	
657	2	B	T	1	- 5
		B	S	8	-12
660	3	L	M W F	10	
684	4	L	MTW F	10	
693	1-05	I		ARR	
694	1-03	D		ARR	
701	3	L	M W F	11	
		L	M W F	1	
707	2	B	S	8	-12
711	3	L	M W F	1	
713	3	L	M W F	2	
714	3	L	M W F	12	
717	1	B	S	9	-12
720	3	L	M W F	11	
727	2	B	S	8	-12
733	3	L	M W F	10	
741	3	L		ARR	
747	2	B		ARR	
751	3	L	M W F	9	
752	3	L	M W F	8	
757	2	B	T	8	-12
		B	T	1	- 5
760	3	L	M W F	1	
762	3	L	M W F	9	
794	1-03	D		ARR	
800	3	L	M W F	1	
801	3	L	M W F	2	
804	3	L	M W F	3	
805	3	L	M W F	3	
808	3	L	M W F	2	

810	3	L	M W F	4	
811	3	L	M W F	2	
818	3	L	M W F	11	
821	3	L	T T	3	- 415
822	3	L	M W F	4	
829	3	L	M W F	4	
831	3	L	M W F	4	
835	3	L	T T	9	-1030
850	3	L	M W F	10	
		L	T T	515-	630
854	3	L	M W	5	- 630
864	3	L	M W F	10	
880		D		ARR	
881.A	3	L		ARR	
881.C	3	L		ARR	
881.E	3	L		ARR	
881.F	3	L		ARR	
895	1-05	S		ARR	
899	1-05	S		ARR	
910	3	L	T T	3	- 430
999		I		ARR	

SPRING QUARTER

500	4	L	M W F	12	
		B	M	3	- 6
		B	T	9	-12
502	4	L	T T	5	- 7
503	4	L	M W F	8	
		L	MTW F	10	
		L	MTW F	1	
		L	M W F	3	
508	2	B	T	1	- 5
		B	T	8	-12
		B	T	1	- 5
		B	S	8	-12
511	4	L	M W	5	- 7
512	4	L	MTW F	9	
		L	M W F	11	
		L	MTW F	12	
		L	M W F	4	
517	2	B	M	1	- 5
		B	T	8	-12
		B	T	1	- 5
		B	W	1	- 5
		B	T	8	-12
		B	T	1	- 5
		B	S	8	-12
520	4	L	M W F	9	
		L	M W F	10	
		L	M W F	12	
		L	M W F	1	
		B	M	3	- 6
		B	T	8	-11
		B	T	3	- 6
		B	T	9	-12
		B	T	3	- 6
		B	F	12	- 3
		B	S	9	-12
540	4	L	M W F	9	
		L	M W F	11	
		B	M	3	- 6
		B	T	3	- 6
		B	T	12	- 3
		B	T	3	- 6
581	5	W		ARR	
621	4	L	M W	5	- 7

Electrical Engineering    (Cont'd)

622	4	L	M W T F	8	
		L	MTW F	11	
		L	MTW F	4	
628	2	B	T	8	-12
		B	T	1	- 5
		B	T	1	- 5
		B	S	8	-12
630	4	L	M W T F	4	
631	4	L	MTW F	10	
		L	MTW F	12	
		L	MTW F	1	
640	4	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		B	M	12	- 3
		B	T	9	-12
		B	T	12	- 3
		B	W	9	-12
		B	T	9	-12
		B	T	12	- 3
		B	S	9	-12
642	3	L	T T	5	- 630
647	2	B	T	1	- 5
		B	S	8	-12
684	4	L	M W F	10	
		L	T	12	
		L	M W F	2	
		L	T	12	
693	1-05	I		ARR	
694	1-03	D		ARR	
702	3	L	M W F	8	
703	3	L	M W F	11	
708	2	B	T	1	- 5
712	3	L	M W F	3	
720	3	L	M W F	10	
721	3	L	M W F	2	
728	2	B	T	1	- 5
732	4	L	MTW F	12	
742	3	L	M W F	8	
748	2	B		ARR	
753	3	L	M W F	8	
754	3	L	M W F	10	
758	2	B	T	1	- 5
760	3	L	M W F	11	
		L	M W F	5	
761	3	L	M W F	3	
767	2	B	T	1	- 4
		B	S	9	-12
794	1-03	D		ARR	
802	3	L	M W F	1	
805	3	L	M W F	2	
806	3	L	M W F	2	
809	3	L	M W F	1	
812	3	L	M W F	2	
813	3	L	M W F	3	
816	3	L	M W F	4	
819	3	L	M W F	12	
820	3	L	M W F	1	

823	3	L	M W F	1	
832	3	L	M W F	4	
833	3	L	M W F	3	
836	3	L	M W F	11	
851	3	L	M W F	10	
		L	T T	515- 630	
853	3	L	M W	5	- 630
855	3	L	M W	5	- 630
880		D		ARR	
881.B	3	L		ARR	
881.C	3	L		ARR	
881.D	3	L		ARR	
881.E	3	L		ARR	
895	1-05	S		ARR	
899	1-05	S		ARR	
999		I		ARR	

Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	4	LB	MT TF	2 - 4	REED ROMEO
		LB	MT TF	2 - 4	
111	3	LB	M W F	8 -10	P
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	M W F	6 - 8	
		LB	T T	8 -11	
		LB	T T	1 - 4	
112	3	LB	M W F	8 -10	WATKINS
		LB	M W F	10 -12	
		LB	M W F	3 - 5	
		LB	T T	1 - 4	
199	5	LB	MTWTF	1 - 3	HANG
		LB	MTWTF	1 - 3	
204	4	LB	MT TF	8 -10	KEARNS
237	5	LB	MTWTF	3 - 5	PARKINSON
WINTER QUARTER					
100	4	LB	MT TF	2 - 4	ROMEO
102	4	LB	MT TF	10 -12	ROMEO
111	3	LB	M W F	8 -10	P
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	T T	8 -11	
		LB	T T	1 - 4	
112	3	LB	M W F	8 -10	PARKINSON
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	M W F	6 - 8	
		LB	T T	8 -11	
		LB	T T	1 - 4	
129	3	LB	M W F	10 -12	PARKINSON



194	1-05	LB	T T	1 - 4	REED
206	4	LB	MT TF	8 -10	KEARNS
SPRING QUARTER					
10n	4	LB	MT TF	2 - 4	ROMEO
102	4	LB	MT TF	10 -12	ROMEO
111	3	LB	T T	8 -11	
		LB	T T	1 - 4	
112	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
194	1-05	LB	T T	1 - 4	REED
208	4	LB	MT TF	8 -10	BALDWIN
755	3	LB	T T	1 - 4	PARKINSON

835	3	D	M W	4 - 515	
854	3	D	T T	2 - 315	
881	2-05	S		ARR	
889	1	S		ARR	
999		I		ARR	

#### WINTER QUARTER

20n	3	LB	MTWTF	9	
		LB	MTWTF	10	
		LB	MTWTF	2	
		LB	MTWTF	3	
202	4	LB	MTWTF	11	
21n	5	D	MTWTF	8	
		D	MTWTF	12	
		D	MTWTF	1	
41n	3	D	M W F	9	
		D	M W F	2	
42n	5	D	MTWTF	10	
		D	MTWTF	1	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	12	
		B	T	2	
		B	T	3	
51n	5	D	MTWTF	11	
		D	MTWTF	2	
		D 1	MTWTF	8	
521	3	D	M W F	8	
621	3	D	M W F	8	
627	3	L	T T	12	
		B		ARR	
694	2-05	S		ARR	
70n	3	D	M W F	9	
711	3	D	T T	530- 645	
741	3	D	M W	530- 645	
748	3	L	T T	8	
		B		ARR	
754	3	D	T T	2 - 315	
831	3	D	T T	4 - 515	
843	3	D	T T	8 - 915	
847	3	D	M W F	3	
855	3	D		ARR	
864	3	D	M W F	12	
881	2-05	S		ARR	
889	1	S	W	4	
999		I		ARR	

#### SPRING QUARTER

20n	3	LB	MTWTF	9	
		LB	MTWTF	1	
		LB	MTWTF	2	
203	4	LB	MTWTF	11	
21n	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	12	
41n	3	D	M W F	9	
420	5	D	MTWTF	1	
		B	T	10	
		B	T	12	
		B	T	2	
		B	T	3	

## Engineering Mechanics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
20n	3	LB	MTWTF	9	
		LB	MTWTF	10	
		LB	MTWTF	1	
		LB	MTWTF	2	
201	4	LB	MTWTF	11	
21n	5	D	MTWTF	12	
41n	3	D	M W F	10	
		D	M W F	2	
42n	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	1	
		D 1	MTWTF	8	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
522	3	D	M W F	9	
624	3	D	M W F	8	
627	3	L	T T	8	
		B		ARR	
66n	5	D	MTWTF	2	
694	2-05	S		ARR	
731	3	D	T T	530- 645	
74n	3	D	M W	530- 645	
748	3	L	T T	12	
		B		ARR	
751	3	D	T T	4 - 515	
812	3	D	M W F	12	

Engineering Mechanics (Cont'd)

51n	5	D	MTWTF	11
521	3	D	M W F	12
522	3	D	M W F	8
627	3	L B	T T	8 ARR
694	2-05	S		ARR
732	3	D	M W F	3
748	3	L B	T T	12 ARR
752	3	D	M W	530- 645
757	3	D	M F	4 - 515
832	3	B		ARR
833	3	D	T T	530- 645
84n	3	D	T T	4 - 515
854	3	D	T T	2 - 315
881	2-05	S		ARR
889	1	S	W	4 - 530
999		I		ARR

English

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

71	5	D	MTWTF	12	
72	5	D	MTWTF	12	
73	3	D	M W F	12	
101	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W F	5	
		D	M W F	6	
		D	M W F	7	P
		D	M W	4 - 530	
		D	M W	530- 7	
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	
		D	T T	4 - 530	
		D	T T	530- 7	
		D	T T	7 - 830P	
102	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	

103	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W F	6	
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	
104	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	T T	930-11	
22n	5	D	MTWTF	9	
		D	MTWTF	11	
		D	MTWTF	1	
24n	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	2	
26n	5	D	MTWTF	9	
261	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	2	
		D	MTWTF	3	
		D	MTWTF	4	
262	5	D	MTWTF	9	
		D	MTWTF	2	
265	5	D	MTWTF	11	
		D	MTWTF	2	
29n	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	1	
		D	MTWTF	3	
		D	MT T	7 - 830P	
293	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	1	
		D	MTWTF	3	
294	5	D	MTWTF	9	
		D	MTWTF	11	
		D	MTWTF	2	
		D	MTWTF	4	
296	5	D	MTWTF	11	
301	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	
		D	MTWTF	4	
302	5	D	MTWTF	8	
		D	MTWTF	12	
		D	MTWTF	3	
305	3	D	M W	11	
		I		61 HR ARR	
		I	T T	9	
		I		61 HR ARR	
		I	T T	11	
		I		61 HR ARR	
522	5	D	MTWTF	9	WEBBER
535	5	D	MTWTF	1	GIBSON
541	5	D	MTWTF	9	KINCAID
551	5	D	MTWTF	11	WOODSON
553	5	D	MTWTF	2	BEJA



57n	5	D	MTWTF	3	KABEALO
615	5	D	MTWTF	11	DETLEF
624	5	D	MTWTF	10	ROBBINS
642	5	D	MTWTF	3	BRUNS
667	5	D	MTWTF	10	CANZONERIX
68n	5	D	MTWTF	1	VARANDYAN
693	1-05	C		ARR	
699	5	D	MTWTF	9	
		D	MTWTF	12	
		D	MTWTF	3	
783	3-05	C		ARR	
81n	5	S	T T	2 - 4	STEVENS
812	5	S	M W	4 - 6	STEVENS
82n	5	S	M W	2 - 4	SOELLNER
822	5	S	MTWTF	9	WILSON
83n	5	S	T T	11 - 1	WEBBER
832	5	S	M W	10 -12	
842	5	S	MTWTF	1	BRUNS
847	5	S	T T	2 - 4	GRIGSBY
851	5	S	M W	11 - 1	
872	3	D	M W F	9	CORBETT
88n	5	S	T T	10 -12	BEJA
933	5	S	M W	4 - 6	MAURER
94n	5	S	MTWTF	9	ALTICK
98n	5	S	MTWTF	10	ALTICK
982	5	S	M W	1 - 3	BRUCCOLI
999	1			ARR	

WINTER QUARTER

71	5	D	MTWTF	12	
72	5	D	MTWTF	12	
73	3	D	M W F	12	
101	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W F	5	
		D	M W F	6	
		D	M W	4 - 530	
		D	M W	530- 7	
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	
		D	T T	4 - 530	
		D	T T	530- 7	
102	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W F	5	
		D	M W F	6	
		D	M W F	7	P
		D	M W	4 - 530	
		D	M W	530- 7	

		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	
		D	T T	4 - 530	
		D	T T	530- 7	
103	3	D	M W F	8	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W F	5	
		D	M W F	6	
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	11 -1230	
		D	T T	1230- 2	
		D	T T	2 - 330	
		D	T T	530- 7	
105	3	D	M W F	8	
		D	M W F	9	
		D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	T T	930-11	
195	3	D	M W F	2	
22n	5	D	MTWTF	8	
		D	MTWTF	11	
		D	MTWTF	1	
		D	MTWTF	3	
24n	5	D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	3	
26n	5	D	MTWTF	9	
		D	MTWTF	2	
261	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	2	
		D	MTWTF	4	
		D	MT T	7 - 830P	
262	5	D	MTWTF	1	
265	5	D	MTWTF	9	
266	5	D	MTWTF	1	
29n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	3	
293	5	D	MTWTF	9	
		D	MTWTF	11	
		D	MTWTF	2	
		D	MTWTF	4	
294	5	D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	1	
		D	MTWTF	3	
301	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	
		D	MTWTF	4	
302	5	D	MTWTF	8	
		D	MTWTF	11	
		D	MTWTF	2	

## English (Cont'd)

305	3	D	M W	11		
		I		61	HR	ARR
		D	T T	9		
		I		61	HR	ARR
		D	T T	11		
		J		61	HR	ARR
513	5	D	MTWTF	9		ESTRICH
520	5	D	MTWTF	1		SOELLNER
531	5	D	MTWTF	2		MAURER
540	5	D	MTWTF	3		LOGAN
552	5	D	MTWTF	11		MARKELS
565	5	D	MTWTF	2		STEGNER
570	5	D	MTWTF	10		ADAMS
621	5	D	MTWTF	10		COX
643	5	D	MTWTF	3		EDER
649	5	D	MTWTF	1		GRAHAM
672	5	D	MTWTF	9		GARDNER
676	5	D	MTWTF	11		WHEELER
693	1-05	C			ARR	
699	5	D	MTWTF	10		
		D	MTWTF	12		
		D	MTWTF	3		
783	3-05	C 1			ARR	
813	5	S	M W	11	- 1	DETLEF
821	5	S	T T	2	- 4	WEBBER
833	5	S	T T	9	-11	
841	5	S	MTWTF	10		ALTICK
848	5	S	M W	4	- 6	STEGNER
852	5	S	M W	1	- 3	KATZ
865	5	S	M W	11	- 1	CANZONERI
876	5	S	M W	9	-11	GRIGSBY
877	5	S	T T	11	- 1	GARDNER
880	5	S	T T	11	- 1	
920	5	S	T T	1	- 3	HUGHEY
934	5	S	M W	4	- 6	MAURER
941	5	S	MTWTF	9		ALTICK
950	5	S	M W	2	- 4	BRUCCOLI
999	1				ARR	

## SPRING QUARTER

71	5	D	MTWTF	12		
72	5	D	MTWTF	12		
73	3	D	M W F	12		
101	3	D	M W F	8		
		D	M W F	9		
		D	M W F	10		
		D	M W F	11		
		D	M W F	12		
		D	M W F	1		
		D	M W F	2		
		D	M W F	3		
		D	M W F	4		
		D	T T	8	- 930	
		D	T T	930-11		
		D	T T	11	-1230	
		D	T T	1230- 2		
		D	T T	2	- 330	

102	3	D	M W F	8		
		D	M W F	9		
103	3	D	T T	2	- 330	
102	3	D	M W F	10		
		D	M W F	11		
		D	M W F	12		
		D	M W F	1		
		D	M W F	2		
		D	M W F	3		
		D	M W F	4		
		D	M W F	5		
		D	M W F	6		
		D	T T	8	- 930	
		D	T T	930-11		
		D	T T	11	-1230	
		D	T T	1230- 2		
		D	T T	2	- 330	
103	3	D	M W F	8		
		D	M W F	9		
		D	M W F	10		
		D	M W F	11		
		D	M W F	12		
		D	M W F	1		
		D	M W F	2		
		D	M W F	3		
		D	M W F	4		
		D	M W F	5		
		D	M W F	6		
		D	M W F	7		P
		D	M W	4	- 530	
		D	M W	530- 7		
		D	T T	8	- 930	
		D	T T	930-11		
		D	T T	11	-1230	
		D	T T	1230- 2		
		D	T T	2	- 330	
		D	T T	4	- 530	
		D	T T	530- 7		
		D	T T	7	- 830P	
195	3	D	M W F	2		
220	5	D	MTWTF	9		
		D	MTWTF	11		
		D	MTWTF	1		
		D	MTWTF	2		
240	5	D	MTWTF	8		
		D	MTWTF	10		
		D	MTWTF	1		
		D	MTWTF	2		
260	5	D	MTWTF	10		
		D	MTWTF	3		
261	5	D	MTWTF	8		
		D	MTWTF	9		
		D	MTWTF	10		
		D	MTWTF	11		
		D	MTWTF	12		
		D	MTWTF	2		
		D	MTWTF	3		
		D	MTWTF	4		
290	5	D	MTWTF	8		
		D	MTWTF	10		
		D	MTWTF	11		
		D	MTWTF	12		
		D	MTWTF	1		
		D	MTWTF	3		
		D	MTWTF	4		
293	5	D	MTWTF	9		
		D	MTWTF	11		
		D	MTWTF	12		
		D	MTWTF	2		
		D	MTWTF	4		
294	5	D	MTWTF	8		
		D	MTWTF	10		
		D	MTWTF	1		
		D	MTWTF	3		
		D	MT T	7	- 830P	
299	5	D	MTWTF	3		
301	5	D	MTWTF	8		
		D	MTWTF	9		
		D	MTWTF	10		
		D	MTWTF	11		
		D	MTWTF	12		
		D	MTWTF	1		
		D	MTWTF	2		
		D	MTWTF	3		
		D	MTWTF	4		



302	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	2	
305	3	D	M W	11	
		I		61	HR ARR
		D	T T	9	
		I		61	HR ARR
		D	T T	11	
		I		61	HR ARR
52n	5	D	MTWTF	10	WEBBER
522	5	D	MTWTF	10	ROBBINS
535	5	D	MTWTF	11	
541	5	D	MTWTF	9	MARTIN
551	5	D	MTWTF	1	
553	5	D	MTWTF	3	MUSTE
57n	5	D	MTWTF	2	KABEALO
615	5	D	MTWTF	9	ESTRICH
634	5	D	MTWTF	11	WILSON
641	5	D	MTWTF	1	SHAPIRO
665	5	D	MTWTF	3	STEGNER
671	5	D	MTWTF	2	STEVENS
693	1-05			ARR	
699	5	D	MTWTF	9	
699		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	3	
783	3-05	C 1		ARR	
814	5	S	M W	4 - 6	STEVENS
82n	5	S	M W	10 -12	COX
823	5	S	M W	10 -12	HUGHEY
83n	5	S	MTWTF	9	ROBBINS
831	5	S	MTWTF	9	WILSON
835	5	S	M W	1 - 3	
84n	5	S	MTWTF	3	LOGAN
847	5	S	T T	1 - 3	PARKS
878	5	S	T T	10 -12	GARDNER
88n	5	S	T T	10 -12	
91n	5	S	M W	4 - 6	UTLEY
921	5	S	T T	1 - 3	HUGHEY
951	5	S	M W	1 - 3	BRUCCOLI
999	1			ARR	

431	5	L	M W F	1	FISK
		B	T T	1 - 3	
46n	5	LB	MTWTF	3	HOLDSWORTH
		LB	MTWTF	4	
621	5	L	T T	3	BORROR
		B	M W F	3 - 5	
66n	5	L	M W F	1	DAVIDSON
		B	T T	1 - 3	
67n	4	LB	T T	8 - 1	JOHNSTON
693	2-05	I		ARR	
694	2-05	I		ARR	
897	1	S		ARR	DAMBACH
999		I		ARR	

WINTER QUARTER

20n	5	L	M W F	9	VALENTINE
		B	T T	8 -10	
		L	M W F	10	
		B	T T	10 -12	
46n	5	LB	MTWTF	1	DAVIDSON
		LB	MTWTF	2	
662	5	L	M W F	10	COLLINS
		B	T T	10 -12	
693	2-05	I		ARR	
694	2-05	I		ARR	
751	5	L	T T	1	BORROR
831	5	L	M W F	2	FISK
		B	T T	2 - 4	
841	5	L	MTWTF	9	BRIGGS
		B	F	8 -10	
897	1	S		ARR	DAMBACH
999		I		ARR	

SPRING QUARTER

20n	5	L	M W F	9	VALENTINE
		B	T T	8 -10	
		L	M W F	10	
		B	T T	10 -12	
361	5	L	M W F	3	STEPHEN
		B	T T	3 - 5	
46n	5	LB	MTWTF	1	HOLDSWORTH
		LB	MTWTF	2	
561	3	D	M W F	11	DAVIDSON
602	3	D	M W F	9	ROTHENBUHLER
661	5	L	M W F	8	VENARD
		B	T T	8 -10	
		B	T T	10 -12	
693	2-05	I		ARR	
694	2-05	I		ARR	
802	5	L	T T	10	FISK
		B	M W F	10 -12	
87n	4	LB	M W	1 - 6	JOHNSTON
896	1	S		ARR	
897	1	S		ARR	
999		I		ARR	

# Entomology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

20n	5	L	M W F	9	TRIPLEHORN
		B	T T	8 -10	
		L	M W F	10	
		B	T T	10 -12	

## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

10n			W	ARR	
11n	3	L	M W F	9	
		L	M W F	11	
111	3	L	M W F	8	
		L	M W F	10	
		L	M W F	12	
		L	M W F	2	
		L	M W F	4	
		L	M W	7 - 830P	
14n	3	B	M W F	1 - 3	
		B		61 HR ARR	
17n	5	B	MTWTF	8 -10	
		B	MTWTF	10 -12	
		B	MTWTF	1 - 3	
		B	MTWTF	3 - 5	
		B	MTWT	7 - 930P	
171	5	B	MTWTF	1 - 3	
		B	MTWTF	3 - 5	
		B	MTWT	7 - 930P	
18n	5	B	MTWTF	8 -11	
		B	MTWTF	11 - 2	
		B	MTWTF	2 - 5	
19n	3	B	T T	10 -12	
		B	W	11	
		B	M F	10 -12	
		B	W	10	
		B	T T	1 - 3	
		B	W	2	
		B	M F	1 - 3	
		B	W	1	
		B	MTWTF	3	
		B	MTWTF	4	
		B	T T	7 - 930P	
21n	3	L	M W F	8	
		L	M W F	1	
211	3	L	M W F	11	
		L	M W F	4	
212	3	L	M W F	10	
		L	M W F	2	
213	3	L	M W F	10	
24n	5	B 2	MTWTF	8 -10	
		B 2	MTWTF	10 -12	
244	5	B	MTWTF	10 -12	
		B		65 HR ARR	
		B	MTWTF	3 - 5	
		B		65 HR ARR	
245	5	B	MTWTF	8 -10	
		B		65 HR ARR	
		B	MTWTF	1 - 3	
		B		65 HR ARR	
246	5	B	MTWTF	8 -10	
		B		65 HR ARR	
		B	MTWTF	1 - 3	
		B		65 HR ARR	
25n	3	L	M W F	10 -12	
251	5	B 2	MTWTF	10 -12	
		B 2	MTWTF	1 - 3	
		B 2	MTWTF	3 - 5	
258	3	B	M W F	8 -10	
		B	T	8	
272	5	B	MTWTF	9 -12	
		B	MTWTF	1 - 4	
273	5	B	MTWTF	2 - 5	
276	5	B	MTWTF	5 - 7	
28n	5	B	MTWTF	10 -12	

282	5	B	MTWTF	9 -12	
29n	5	B	MTWTF	8 -10	
		B	MTWTF	10 -12	
		B	MTWTF	1 - 3	
		B	MTWTF	3 - 5	
295	3	B	M W F	8 -10	
297	3	B	M W F	8 -10	
401	5	B	MTWTF	1 - 4	
441	5	L	MTWTF	11	
45n	5	B	MTWTF	8 -10	
		B	MTWTF	1 - 3	
46n	5	B	MTWTF	10 -12	
		B	MTWTF	3 - 5	
468	5	B	MTWTF	1 - 3	BAUGHMAN
469	3	B	MTW	1 - 3	BAUGHMAN
50n	3	B	M W F	8 -10	
		B	M W F	10 -12	
		B	M W F	1 - 3	
		B	M W F	3 - 5	
		B	M W F	4 - 6	
515	5	L	MTWTF	1	MELNIKAS
55n	3	B	TWT	9	
57n	5	B	MTWTF	9 -12	
573	5	B	MTWTF	2 - 5	
582	5	B	MTWTF	1 - 4	
603	4	L	M W F	10 -12	
		I	T	9 -12	
616	3	L	M W F	1	KAPLAN
62n	5	L	MTWTF	3	RUBRIGHT
624	3	L	M W F	11	LUDDEN
631	5	L	MTWTF	10	COPE
636	5	L	MTWTF	9	
64n	5	B	MTWTF	3 - 5	
		B		65 HR ARR	
65n	5	B	M F	9 -12	
		B	TWT	10 -12	
66n	5	B	MTWTF	1 - 3	
655	5	B	MTWTF	10 -12	
67n	5	B	MTWTF	1 - 4	
678	5	B	MTWTF	2 - 5	CHAFETZ
681	5	B	MTWTF	9 -12	
693.01	2-05	I		ARR	
693.02	2-05	I		ARR	
693.03	2-05	I		ARR	
693.04	2-05	I		ARR	
693.05	2-05	I		ARR	
693.06	2-05	I		ARR	
693.07	2-05	I		ARR	
693.08	2-05	I		ARR	
693.09	2-05	I		ARR	
693.10	2-05	I		ARR	
693.11	2-05	I		ARR	
715	3	S	M	3 - 5	
805	5	S		ARR	
806	5	S		ARR	



807	3-05 S	ARR	
84n	3-05 I	ARR	
875	3-05 I	ARR	
881	3-05 I	ARR	
885	3-05 I	ARR	
911	3-05 I	ARR	
93n	2-05 S	T	3 - 5 LUDDEN
932	2-05 S	T	3 - 5 PATTON
94n	3-05 I	ARR	
95n	3-05 I	ARR	
97n	3-05 I	ARR	
971	3-05 I	ARR	
98n	3-05 I	ARR	
993.01	1-05 I	ARR	
993.03	1-05 I	ARR	
993.04	1-05 I	ARR	
993.05	1-05 I	ARR	
993.06	1-05 I	ARR	
993.10	1-05 I	ARR	
993.11	1-05 I	ARR	
999	I	ARR	

WINTER QUARTER

10n	W	ARR	
11n	3	L M W F 9	
		L M W F 11	
		L M W 7 - 930P	
111	3	L M W F 8	
		L M W F 10	
		L M W F 12	
		L M W F 2	
		L M W F 4	
14n	3	B M W F 10 -12	
		B 1 HR ARR	
171	5	B MTWTF 8 -10	
		B MTWTF 10 -12	
		B MTWTF 1 - 3	
		B MTWTF 3 - 5	
175	5	B MTWTF 10 -12	
		B MTWTF 1 - 3	
		B MTWTF 3 - 5	
18n	5	B MTWTF 8 -11	
		B MTWTF 11 - 2	
		B MTWTF 2 - 5	
19n	3	B T T 10 -12	
		B W 11	
		B M F 10 -12	
		B W 10	
		B T T 1 - 3	
		B W 2	
		B M F 1 - 3	
		B W 1	
		B MTWTF 3	
		B MTWTF 4	
		B T T 7 - 930P	
21n	3	L M W F 8	
		B M W F 1	
211	3	L M W F 9	
		L M W F 2	
212	3	L M W F 10	
		L M W F 3	
240	5	B 2 MTWTF 8 -10	
		B 2 MTWTF 1 - 3	

244	5	B MTWTF 8 -10	
		B MTWTF 1 - 3	
245	5	B MTWTF 8 -10	
		B 5 HR ARR	
		B MTWTF 1 - 3	
		B 5 HR ARR	
246	5	B MTWTF 8 -10	
		B 5 HR ARR	
		B MTWTF 1 - 3	
		B 5 HR ARR	
252	5	B MTWTF 10 - 1	
		B MTWTF 2 - 5	
258	3	B M W F 8 -10	
		B T 8	
272	5	B MTWTF 8 -11	
		B MTWTF 2 - 5	
273	5	B MTWTF 8 -11	
28n	5	B MTWTF 8 -10	
		B MTWTF 10 -12	
282	5	B MTWTF 9 -12	
29n	5	B MTWTF 8 -10	
		B MTWTF 10 -12	
		B MTWTF 1 - 3	
		B MTWTF 3 - 5	
296	3	B M W F 8 -10	
401	5	B MTWTF 8 -11	
442	5	B MTWTF 10 -12	
451	5	B MTWTF 8 -10	
		B MTWTF 1 - 3	
461	5	B MTWTF 10 -12	
		B MTWTF 3 - 5	
468	5	B MTWTF 1 - 3	BAUCHMAN
469	3	B MTW 1 - 3	BAUCHMAN
50n	3	B M W F 8 -10	
		B M W F 10 -12	
		B M W F 1 - 3	
		B M W F 3 - 5	
52n	5	L MTWTF 11	
551	3	L TWT 9	
57n	5	B MTWTF 8 -11	
573	5	B MTWTF 8 -11	
58n	5	B MTWTF 1 - 4	
617	3	L M W F 2	KAPLAN
621	5	L MTWTF 2	RUBRIGHT
625	5	L M W F 11	LUDDEN
629	5	L MTWTF 1	MELNIKAS
635	5	L MTWTF 10	
638	3	L M W F 3	BAIGELL
641	5	B MTWTF 1 - 4	
651	5	B M F 9 -12	
		B TWT 10 -12	
661	5	B MTWTF 1 - 3	
666	5	B MTWTF 10 -12	
677	5	B MTWTF 2 - 5	R GATRELL
681	5	B MTWTF 9 -12	
693.01	2-05 I	ARR	
693.02	2-05 I	ARR	
693.03	2-05 I	ARR	
693.04	2-05 I	ARR	

## Fine Arts (Cont'd)

693.05	2-05	I	ARR
693.06	2-05	I	ARR
693.07	2-05	I	ARR
693.08	2-05	I	ARR
693.09	2-05	I	ARR
693.10	2-05	I	ARR
693.11	2-05	I	ARR
718	5	L	MTWTF 4
726	3	L	M W F 3
816	3	I	ARR
839	3	S	ARR
845	3-05	I	ARR
846	3-05	I	ARR
847	3-05	S	ARR
874	3-05	I	ARR
876	3-05	I	ARR
879	2	S	ARR
911	3-05	I	ARR
940	3-05	I	ARR
950	3-05	I	ARR
970	3-05	I	ARR
971	3-05	I	ARR
980	3-05	I	ARR
993.01	1-05	I	ARR
993.03	1-05	I	ARR
993.04	1-05	I	ARR
993.05	1-05	I	ARR
993.06	1-05	I	ARR
993.10	1-05	I	ARR
993.11	1-05	I	ARR
999	I		ARR

## SPRING QUARTER

100		W	ARR
110	3	L	M W F 9
		L	M W F 11
		L	M W F 2
111	3	L	M W F 8
		L	M W F 10
		L	M W F 1
		L	M W F 3
		L	M W 7 - 830P
140	3	B	M W F 1 - 3
		B	61 HR ARR
170	5	B	MTWTF 10 -12
		B	MTWTF 1 - 3
		B	MTWTF 3 - 5
175	5	B	MTWTF 8 -10
		B	MTWTF 10 -12
		B	MTWTF 1 - 3
		B	MTWTF 3 - 5
180	5	B	MTWTF 8 -11
		B	MTWTF 11 - 2
		B	MTWTF 2 - 5

190	3	B	T T 8 -10
		B	W 9
		B	M W F 8 -10
		B	W 8
		B	T T 10 -12
		B	W 11
		B	M W F 10 -12
		B	W 10
		B	T T 1 - 3
		B	W 2
		B	M W F 1 - 3
		B	W 1
		B	MTWTF 3
		B	MTWTF 4
		B	M W 7 - 930P
200	3	L	M W F 8
		L	M W F 4
210	3	L	M W F 11
		L	M W F 2
211	3	L	M W F 10
		L	M W F 4
212	3	L	M W F 8
		L	M W F 1
213	3	L	M W F 9
240	5	B 2	MTWTF 8 -10
		B 2	MTWTF 10 -12
244	5	B	MTWTF 10 -12
		B	65 HR ARR
		B	MTWTF 3 - 5
		B	65 HR ARR
245	5	B	MTWTF 8 -10
		B	65 HR ARR
		B	MTWTF 1 - 3
		B	65 HR ARR
246	5	B	MTWTF 8 -10
		B	65 HR ARR
		B	MTWTF 1 - 3
		B	65 HR ARR
253	5	B	MTWTF 10 - 1
		B	MTWTF 2 - 5
258	3	B	M W F 8 -10
		B	T 8
260	3	L	M W F 1
270	3	B	M W 1 - 4
272	5	B	MTWTF 1 - 4
273	5	B	MTWTF 8 -11
274	5	B	MTWTF 9 -12
276	5	B	MTWTF 11 - 1
		B	MTWTF 1 - 3
281	5	B	MTWTF 2 - 5
290	5	B	MTWTF 8 -10
		B	MTWTF 10 -12
		B	MTWTF 1 - 3
		B	MTWTF 3 - 5
297	3	B	M W F 8 -10
402	4	B	T T 10 -12
		B	S 9 -12
443	5	B	MTWTF 10 -12
452	5	B	MTWTF 8 -10
		B	MTWTF 1 - 3
462	5	B	MTWTF 10 -12
		B	MTWTF 3 - 5
465	5	B	MTWTF 10 -12
468	5	B	MTWTF 1 - 3
469	3	B	MTW 1 - 3
500	3	B	M W F 8 -10
		B	M W F 1 - 3
		B	M W F 3 - 5
530	3	L	M W F 2

BAUGHMAN

BAUGHMAN



552	3	L	M W F	4	
570	5	B	MTWTF	1 - 4	
571	5	B	MTWTF	9 -12	
572	5	B	MTWTF	9 -12	
573	5	B	MTWTF	8 -11	
581	5	B	MTWTF	9 -12	
619	3	L	M W F	1	KAPLAN
622	5	L	MTWTF	10	RUBRIGHT
627	5	L	MTWTF	11	LUDDEN
630	5	L	MTWTF	1	MELNIKAS
636	5	L	MTWTF	3	
637	5	L	MTWTF	10	PATTON
642	5	L	MTWTF	8 -10 6.5 HR ARR	
652	5	B	MTWTF	1 - 3	
662	5	B	MTWTF	9 -12	
667	5	B	MTWTF	10 -12	
693.01	2-05	I		ARR	
693.02	2-05	I		ARR	
693.03	2-05	I		ARR	
693.04	2-05	I		ARR	
693.05	2-05	I		ARR	
693.06	2-05	I		ARR	
693.07	2-05	I		ARR	
693.08	2-05	I		ARR	
693.09	2-05	I		ARR	
693.10	2-05	I		ARR	
693.11	2-05	I		ARR	
804	3-05	I		ARR	
841	3-05	I		ARR	
846	3-05	I		ARR	
848	3-05	I		ARR	
870	3-05	I		ARR	
887	3-05	I		ARR	
911	3-05	I		ARR	
917	2-05	S	T	3 - 5	LUDDEN
920	2-05	L	T	3 - 5	
939	2-05	S	T	3 - 5	LUDDEN
940	3-05	I		ARR	
950	3-05	I		ARR	
970	3-05	I		ARR	
971	3-05	I		ARR	
980	3-05	I		ARR	
993.01	1-05	I		ARR	
993.03	1-05	I		ARR	
993.04	1-05	I		ARR	
993.05	1-05	I		ARR	
993.06	1-05	I		ARR	
993.10	1-05	I		ARR	

993.11	1-05	I	ARR
999		I	ARR

## Forestry

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
221	5	L	M W F	2	COWEN
		B	T T	2 - 4	COWEN
310	5	L	M W F	10	TOUSE
		B	T T	10 -12	TOUSE
321	5	L	M W F	9	COWEN
		B	T T	9 -11	COWEN
431	5	L	MTWTF	8	TOUSE
593	2-05	S		ARR	
897	1	S		ARR	
999			MTW		

WINTER QUARTER					
223	5	L	MTWTF	10	COWEN
323	5	L	MTWTF	9	TOUSE
432	5	L	MTWTF	8	TOUSE
593	2-05	S		ARR	
897	1	S		ARR	
999		S		ARR	

SPRING QUARTER					
222	5	L	M W F	2	COWEN
		B	T T	2 - 4	COWEN
325	5	L	MTWTF	9	COWEN
433	5	L	MTWTF	8	TOUSE
593	2-05	S		ARR	
897	1	S		ARR	
999		S		ARR	

## French

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	

WINTER QUARTER

101	5	R	MTWTF	8
		R	MTWTF	9

			R	MTWTF	10
			R	MTWTF	11
			R	MTWTF	12
			R	MTWTF	1
			R	MTWTF	2
			R	MTWTF	3
			R	MTWTF	4
102	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	P
103	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
105	5	R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	2	
162	5	R	MTWTF	12	
401	3	R	M W F	10	
403	3	R	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
		R	M W F	2	
404	5	R	MTWTF	10	
		R	MTWTF	11	
421	5	LR	MTWTF	9	
		LR	MTWTF	1	
422	5	LR	MTWTF	11	
571		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	5	
572		R	M W F	11	
		R	M W F	3	
		R	M W F	5	
573		R	M W F	12	
		R	M W F	5	
601	5	R	MTWTF	1	
		R	MTWTF	1	
602	3	R	M W F	3	
621	5	LR	MTWTF	11	
624	5	LR	MTWTF	9	
628	3	LR	M W F	2	
693	1-05	C		ARR	
783	3-05			ARR	
794	1-05	C		ARR	
812	3	LR	M W	4	
		LR	W	5	
829	3	LR	M W F	12	
832	3-05	S	T	3 - 5	
999	J			ARR	

MEIDEN

MEIDEN

ASTIER

MITCHELL

CARLUT

ASTIER

BULATKIN

HONEYCUT1

MITCHELL



SPRING QUARTER

101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	3	
102	5	R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
103	5	R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	3	
105	5	R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	1	
		R	MTWTF	2	
163	5	R	MTWTF	12	
271	3	LR	M W F	12	
401	3	R	M W F	9	
402	3	R	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
404	5	R	MTWTF	9	
		R	MTWTF	10	
421	5	LR	MTWTF	10	
		LR	MTWTF	1	
423	5	LR	MTWTF	11	
571		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	5	
572		R	M W F	11	
		R	M W F	3	
		R	M W F	5	
573		R	M W F	12	
		R	M W F	5	
601	5	R	MTWTF	12	MEIDEN
603	3	R	M W F	9	CARLUT
626	5	LR	MTWTF	2	ASTIER
693	1-05	C		ARR	
783	3-05			ARR	
794	1-05	C		ARR	
813	5	LR	M W F	4	BULATKIM
		LR	M W	5	
821	3	LR	M W F	1	HONEYCUTT
826	3	LR	M W F	11	CARLUT
833	3-05	S	T	3 - 5	ASTIER
999		I		ARR	

Geodetic Science

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

513	5	L	MT TF	11	
		B	T	2 - 5	
		B	W	2 - 5	
		B	T	2 - 5	
522	5	L	MT TF	9	
		B	M	2 - 5	
		B	T	2 - 5	
		B	W	2 - 5	
625	4	L	MT T	1	
		B	T	2 - 5	
626	4	L	T T	11	
		B	F	2 - 5	
		L	W	1	
641	5	L	MTWTF	8	
657	5	L	MT TF	10	
		B	M	2 - 5	
		B	F	2 - 5	
693	2-09	C		ARR	
694	2-09	S		ARR	
821	4	L	M W F	11	
		B		ARR	
847	5	L	MT TF	9	
		B	W	8 - 10	
868	5	L	MT TF	1	
		B	T	10 - 1	
885	2-09	C		ARR	
887	1-05	S		ARR	
994	2-09	D		ARR	
999		I		ARR	

WINTER QUARTER

512	5	L	MT TF	1	
		B	M	8 - 11	
		B	F	8 - 11	
613	5	L	MTWTF	11	
614	5	L	MT TF	11	
		B	W	1 - 3	
		B	W	3 - 5	
624	5	L	MT TF	9	
		B	M	2 - 5	
		B	T	2 - 5	
627	5	L	MT TF	9	
		B	T	2 - 5	
		B	F	2 - 5	
642	5	L	MT TF	10	
		B	W	8 - 11	
		B	M	2 - 5	
		B	T	2 - 5	
693	2-09	C		ARR	
694	2-09	S		ARR	
822	5	L	MT TF	11	
		B	T	2 - 5	
823	5	L	MT TF	1	
		B		ARR	
844	5	L	M W F	10	
		B	W	1 - 3	
852	4	L	M W F	8	
		B	F	2 - 5	
853	3	L	T T	8	
		L	W	11	

### Geodetic Science (Cont'd)

885	2-09	C	ARR
887	1-05	S	ARR
994	2-09	D	ARR
999		I	ARR

#### SPRING QUARTER

631	3	L	M W F	8	
663	4	L	M W F	9	
		B		ARR	
693	2-09	C		ARR	
694	2-09	S		ARR	
812	5	L	MT TF	11	
		B	M	2	- 4
825	5	L	MT TF	9	
		B		ARR	
826	5	L	MT TF	11	
		B		ARR	
846	5	L	MT TF	10	
		B	T	2	- 5
		B	W	2	- 5
		B	T	2	- 5
863	5	L	MT TF	1	
885	2-09	C		ARR	
887	1-05	S		ARR	
994	2-09	D		ARR	
999		I		ARR	

### Geography

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

20n	5	D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	1	
22n	5	L	M W F	8	
		B	T T	8	
		B	T T	9	
		L	M W F	10	
		B	T T	9	
		B	T T	10	
		L	M W F	11	
		B	T T	11	
		B	T T	12	
		L	M W F	12	
		B	T T	12	
		B	T T	1	
		L	M W F	2	
		B	T T	1	
		B	T T	2	
24n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	

40n	3	D	M W F	10	MCCONNELL
405.A	3	D	M W F	10	PATTEN
412	3	D	M W F	9	DEMKO
52n	4	D	MTWT	2	BASILE
53n	3	D	M W F	9	VANDOREN
546	3	D	M W F	8	HOFFMAN
56n	3	D	M W F	11	WITTHUHN
62n	3	D	M W F	2	RAYNER
64n	3	D	M W F	8	BROWN
647	3	D	M W F	10	GAUTHIER
65n	3	D	M W F	1	GOLLEDGE
693	3-05	C		ARR	
694	3	D	M W F	1	SHECK
82n.C	3-05	S		ARR	KING
84n.D	3-05	S		ARR	PATTEN
85n.B	5	S		ARR	GOLLEDGE
882	4	S		ARR	RANDALL
883.A	4	S		ARR	KING
889	3-05	S		ARR	
897	1	S		ARR	
899	1-05	S		ARR	KING MILLS
999		I		ARR	

#### WINTER QUARTER

20n	5	D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	1	
		D	MTWTF	2	
22n	5	L	M W F	8	
		B	T T	8	
		B	T T	9	
		L	M W F	10	
		B	T T	9	
		B	T T	10	
		L	M W F	11	
		B	T T	11	
		B	T T	12	
		L	M W F	12	
		B	T T	12	
		B	T T	1	
		L	M W F	1	
		B	T T	1	
		B	T T	2	
24n	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	
40n	3	D	M W F	8	MCCONNELL
405.B	3	D	M W F	9	SHECK
408	3	D	M W F	3	PATTEN
41n	3	D	M W F	8	BROWN
415	3	D	M W F	2	RANDALL
52n	4	D	MTWT	2	BASILE
53n	3	D	M W F	9	VANDOREN
545	3	D	M W F	1	GAUTHIER
58n	3	D	M W F	11	BASILE
62n	3	D	M W F	2	RAYNER



640	3	D	M W F	10	BROWN
647	3	D	M W F	10	LENTNEK
650	3	D	M W F	1	GOLLEDGE
660	3	D	M W F	11	COX
670	3	D	M W F	9	DEMKO
693	3-05	C		ARR	
694	3	S		ARR	LENTNEK
800	4	S		ARR	DEMKO
820.A	3-05	S		ARR	BASILE
840.01	3-05	S		ARR	CASETTI
840.03	3-05	S		ARR	VANDOREN
883.02	4-05	S		ARR	KING
889	3-05	S		ARR	
897	1	S		ARR	
999	1	I		ARR	
SPRING QUARTER					
200	5	D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	1	
		D	MTWTF	2	
220	5	L	M W F	8	
		B	T T	8	
		B	T T	9	
		L	M W F	10	
		B	T T	9	
		B	T T	10	
		L	M W F	11	
		B	T T	11	
		B	T T	12	
		L	M W F	12	
		B	T T	12	
		B	T T	1	
		L	M W F	2	
		B	T T	1	
		B	T T	1	
		B	T T	2	
240	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	
400	3	D	MTWTF	8	MCCONNELL
401	3	D	M W F	9	HUNKER
411	3	D	M W F	11	BROWN
412	3	D	M W F	10	DEMKO
416	3	D	M W F	2	HOFFMAN
560	3	D	M W F	1	WITTHUHN
580	3	D	M W F	11	BASILE
647	3	D	M W F	8	LENTNEK
693	3-05	C		ARR	
694	3	D		ARR	SHECK
820.A	3-05	S		ARR	RAYNER
840.B	3-05	S		ARR	GAUTHIER
850.A	3-05	S		ARR	KING
860	3-05	S		ARR	RANDALL COX
882	4	S		ARR	RANDALL
883.B	4	S		ARR	KING
885	4	S		ARR	VANDOREN

## Geology

No.	Cr'd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTW F	8	
		L	MTW F	10	
		L	MTW F	1	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
		L	T	7 - 930P	
		L	T	7 - 830P	
		B	T	830- 930P	
101	5	L	M W F	2	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
102	5	L	M W F	11	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	W	1 - 3	
200	5	LB	MTWTF	8 -10	SUMMERSON
201	5	L	MT TF	11	LAROCQUE
		B	T	2 - 4	LAROCQUE
550	5	L	MT TF	10	WHITE
		B	T	2 - 4	WHITE
		B	W	10 -12	WHITE
		B	T	2 - 4	WHITE
560	3	L	M W F	9	FAURE
		B	T	8 -10	FAURE
570	1-03	C		ARR	
600	5	L	M W F	2 - 330	SUMMERSON
610	5	LB	M W F	9 -11	LAROCQUE
621	5	L	MTWTF	1	FAURE
643	3	L	M W F	11	BULL
644	3	L	T T	2 - 330	BULL
681	5	F		ARR	
693	1-05	C		ARR	
810	5	S		ARR	
830	3	L	M W	2 - 330	PINCUS
999		C		ARR	

Geology    (Cont'd)

WINTER QUARTER

100	5	L	MTW F	8	
		L	MTW F	10	
		L	MTW F	1	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
		L	T	7 - 930P	
		L	T	7 - 830P	
		B	T	830- 930P	
101	5	L	M W F	2	
		B	T	8 -10	
		B	T	10 -12	
		B	T	2 - 4	
102	5	L	M W F	11	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	W	1 - 3	
202	3	B	M W F	2 - 4	MOORE
204	5	L	MTWTF	9	
500	3	L	M W F	11	WEISS
530	5	L	MTW F	1	MOORE
		B	T	1 - 3	MOORE
570	1-03	C		ARR	
602	3	L	T T	11	SUMMERSON
		B	ARR		SUMMERSON
620	5	L	MTWTF	2	FAURE
641	3	L	M W F	8	CORBATO
660	5	L	MTWTF	3	SHULTZ
661	5	L	M W F	9	BATES
		B	T T	9 -11	BATES
670	5	L	MTWTF	1	WHITE
693	1-05	C		ARR	
810	5	S		ARR	
873	3	L	M W F	10	GOLDTHWAIT
999		C		ARR	

SPRING QUARTER

100	5	L	MTW F	8	
		L	MTW F	10	
		L	MTW F	1	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
101	5	L	M W F	2	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		L	T	7 - 930P	
		L	T	7 - 830P	
		B	T	830- 930P	
102	5	L	M W F	11	
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	W	1 - 3	

200	5	LB	MTWTF	10 -12	SUMMERSON
201	5	L	MT TF	1	SWEET
		B	W	1 - 3	SWEET
203	3	LB	M W F	1 - 3	MOORE
501	3	L	M W F	9	COLLINSON
570	1-03	C		ARR	
601	3	L	T	9	WEISS MOORE
		B	ARR		WEISS MOORE
611	5	L	T T	10	SWEET
		B	ARR		SWEET
632	3	L	M W F	3	ANDERSON
642	2	B		ARR	CORBATO
650	5	L	MTWTF	11	GOLDTHWAIT
651	5	L	MTWTF	8	
663	3	D		ARR	SCHOPF
693	1-05	C		ARR	
810	5	S		ARR	
820	5	L	M W F	10	SHULTZ
		B	ARR		SHULTZ
870	3	L	T T	1 - 3	FAURE
874	3	L	M W F	9	LAROCQUE
880	3	F		ARR	
896	1-03	S		ARR	BULL
999		C		ARR	

German

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	M W F	7 - 830P	
102	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
103	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	2	
109	2	R	T T	1	
		R	M W	3	



113	5	R	MTWTF	3	
114	5	R	MTWTF	11	
119	3	R	M W F	3	
203	3	R	M W F	2	
		R	M W F	2	
204	2	R	T T	2	
		R	T T	2	
225	5	D	MTWTF	10	
226	5	D	MTWTF	11	
227	5	D	MTWTF	12	
262	3	L	M W F	2	HOFFMANN
361	3	L	M W F	12	CUNZ
571		R	MTWTF	8	
		R	MTWTF	12	
572		R	M W F	12	
611	3	L	M W F	10	BELKIN
622	3	L	M W F	1	WITTKOWSKI
693	2-10	I		ARR	
694	2-10	I		ARR	
725	3	L	M W F	11	WITTKOWSKI
801	5	S	MTWTF	9	FLEISCHHAUER
860	5	S	T	3 - 5	HOFFMANN
870	3	S	T	3 - 5	FLEISCHHAUER
999		I		ARR	

WINTER QUARTER

101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
102	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	M W F	7 - 830P	
103	5	R	MTWTF	8	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
109	2	R	T T	11	
		R	T T	1	
		R	M W	3	
114	5	R	MTWTF	3	
117	5	R	MTWTF	12	
203	3	R	M W F	2	
204	2	R	T T	2	
225	5	D	MTWTF	12	

226	5	D	MTWTF	10	
227	5	D	MTWTF	11	
261	3	L	M W F	2	SEIDLIN
362	3	L	M W F	12	CUNZ
571		R	MTWTF	12	
572		R	M W F	1	
573		R	M W F	3	GOTTWALD
612	3	L	M W F	10	BEKKER
623	3	L	M W F	1	HOFFMANN
630	3	R	M W F	3	HAAS
693	2-10	I		ARR	
694	2-10	I		ARR	
724	3	I	M W F	11	SEIDLIN
802	3	S	M W F	9	FLEISCHHAUER
860	5	S	T	3 - 5	WITTKOWSKI
870	3	S	T	3 - 5	FLEISCHHAUER
999		I		ARR	

SPRING QUARTER

101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
102	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
103	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	M W F	7 - 830P	
104	5	R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
109	2	R	T T	11	
		R	T T	1	
		R	M W	3	
113	5	R	MTWTF	11	
118	5	R	MTWTF	12	
203	3	R	M W F	2	
204	2	R	T T	2	
225	5	D	MTWTF	11	
226	5	D	MTWTF	12	
227	5	D	MTWTF	10	
571		R	MTWTF	8	
		R	MTWTF	12	
572		R	M W F	11	
		R	M W F	1	
621	3	L	M W F	1	SEIDLIN
630	3	R	M W F	3	HAAS
635	3	R	T T	8 - 10	FLEISCHHAUER

## German (Cont'd)

693	2-10	I		ARR	
694	2-10	I		ARR	
726	3	L	M W F	11	HOFFMANN
803	3	S	M W F	9	FLEISCHHAUER
860	5	S	T	3 - 5	SEIDLIN
		S	T	3 - 5	BEKKER
999		I			

## Greek

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	R	MTWTF	9	
200	5	DR	MTWTF	12	
603	3	DR	M W F	9	
800	3	DR	T T	9	FORBES
802	4	S	T	3 - 5	BARMANN
850	4	DR	T T	11 - 1230	JONES
993	1-04	C		ARR	LENARDON
995	5	S	W	2 - 5	LENARDON
999		I		ARR	

## WINTER QUARTER

102	5	R	MTWTF	9	
201	3	DR	M W F	2	FORBES
606	3	DR	M W F	3	
612	3	DR	T	10 - 12	BARMANN
693	1-06	CR		ARR	BARMANN
804	4	R	T	10 - 12	JONES
851	4	DR	M W F	11	FORBES
996	5	S	W	2 - 5	LENARDON
999		I		ARR	
		I		ARR	

## SPRING QUARTER

103	5	R	MTWTF	9	
202	3	DR	M W F	11	
609	3	DR	M W F	11	BARMANN
693	1-06	CR		ARR	
803	4	S	T	2 - 4	FORBES
852	4	DR	T T	9 - 1030	BARMANN
999	ARR	I		ARR	

## Health Education

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	1	L	M	11	
		L	M	4	
		R	W	9	
		R	W	10	
		R	W	11	
		R	W	1	
		R	W	2	
		R	W	3	
		R	W	4	
		L	T	10	
		L	T	11	
		L	T	12	
		L	T	1	
		L	T	4	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	12	
		R	T	1	
		R	T	2	
		R	T	3	
		R	T	4	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
		R	F	11	
		L	W	11	
		L	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
102	1	D	T T	8	
		D	T T	9	
		D	T T	5	
103	3	L	M W F	9	
		L	M W F	2	
200.A	5	L	MTWTF	10	CUSHMAN
200.B	5	L	MTWTF	11	BEYRER
300	3	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		L	M W F	4	
301	3	L	M W F	8	
		L	M W F	11	
		L	M W F	12	
		L	M W F	1	
		L	M W F	4	
602	3	L	T	7 - 930P	CUSHMAN
621	3	L	M W F	8	CUSHMAN
693	1-04	C		ARR	
995	2-04	S	T	715- 915P	BEYRER
999		C		ARR	

## WINTER QUARTER

101	1	L	M	11	
		L	M	4	
		R	W	9	
		R	W	10	
		R	W	11	
		R	W	1	
		R	W	2	
		R	W	3	
		R	W	4	
		L	T	10	
		L	T	11	
		L	T	12	
		L	T	1	
		L	T	4	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	12	



		R	T	1	
		R	T	2	
		R	T	3	
		R	T	4	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
		L	W	11	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
102	1	D	M	10	
		D	W	2	
		D	T	10	
		D	T	11	
		D	T	4	
		D	F	1	- 3
103	3	L	M	9	
		L	W	2	
20n.B	5	L	MTWTF	8	BEYRER
201	3	L	M	12	
30n	3	L	M	8	
		L	W	9	
		L	W	10	
		L	W	1	
		L	W	2	
301	3	L	M	9	
		L	W	11	
		L	W	1	
		L	W	2	
		L	W	3	
61n	4	L	MTWTF	1	
62n	3	L	M	10	BEYRER
621	3	L	M	11	CUSHMAN
693	1-04	C		ARR	
994.02	3	S		ARR	BEYRER
996	3	L	T	4	- 930
999		C		ARR	
SPRING QUARTER					
101	1	L	M	11	
		L	M	4	
		L	M	10	
		R	W	9	
		R	W	10	
		R	W	11	
		R	W	1	
		R	W	2	
		R	W	3	
		L	T	4	
		L	T	10	
		L	T	11	
		L	T	12	
		L	T	1	
		L	T	4	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	11	
		R	T	12	
		R	T	1	
		R	T	2	
		R	T	3	
		R	T	4	
		R	F	8	
		R	F	9	
		R	F	10	
		L	F	11	
		L	W	11	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
102	1	D	T	7	- 9 P
		D	F	1	- 3
103	3	L	M	10	
		L	W	12	

20n.A	5	L	MTWTF	8	CUSHMAN
20n.B	5	L	MTWTF	8	BEYRER
201	3	L	M	1	
30n	3	L	M	9	
		L	W	10	
		L	W	11	
		L	W	2	
		L	W	3	
301	3	L	M	8	
		L	W	11	
		L	W	1	
		L	W	2	
		L	W	3	
603	2	L	W	715- 915P	
61n	4	L	MTWTF	9	
62n	3	L	M	2	
693	1-04	C		ARR	
994.03	3	S		ARR	
999		C		ARR	

## History

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

101	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
102	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T	7	- 930P
103	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T	7	- 930P
		L	M	7	- 930P
104	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	

## History (Cont'd)

121	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	4	
		L	T T	7	- 930P
		L	M W	7	- 930P
122	5	L	MTWTF	8	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
123	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
215	5	L	MTWTF	2	DORPALEN
231	3	L	M W F	11	
232	3	L	M W F	10	GREEN
233	3	L	M W F	9	KERR
601	5	L	MTWTF	1	MCDONALD
604	3	L	M W F	2	MCDONALD
606	5	L	MTWTF	10	PEGUES
610	5	L	MTWTF	10	GRIMM
615	5	L	MTWTF	11	LARMOUR
621	5	L	MTWTF	12	FULLMER
635	3	L	M W F	11	MORLEY
639	3	L	M W F	9	MORLEY
640	5	L	MTWTF	9	
641	3	L	M W F	12	FISHER
644	5	L	MTWTF	2	
651	3	L	M W F	9	
655	5	L	MTWTF	2	WILKIE
656	5	L	MTWTF	10	BOWERS
661	3	L	M W F	11	DILLON
665	3	L	M W F	10	BRODY
668	5	L	MTWTF	2	COLES
671	5	L	MTWTF	12	GREEN
672	5	L	MTWTF	12	YOUNG
683	3	L	M W F	9	WEISENBURGER
693	1-03	I		ARR	
694	1-05	I		ARR	
720	3	L	M W F	9	ANKORI
721	3	L	M W F	11	ANKORI
731	3	D	T	330- 530	DORPALEN
783	3-05	I		ARR	
800	3	S	W	3 - 5	GRIMM
803	3	S	T	3 - 5	LARMOUR

811	3	L	M W F	4	WEISENBURGER
812	3	L	M W F	12	
813	3	S	T	3 - 5	ROBERTS
850	3	S		ARR	
867	3	S	T	3 - 5	COLES
868	3	S	M	3 - 5	BOWERS
869	3	S	T	3 - 5	YOUNG
870	3	S	W	3 - 5	ZAHNISR
871	5	D	M W	2 - 4	BRODY
899	1-05	S		ARR	
999		I		ARR	

## WINTER QUARTER

101	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7	- 930P
102	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7	- 930
103	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T T	7	- 930P
104	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
410	5	L	MTWTF	12	
104	5	L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7	- 930P
		L	T T	7	- 930P
121	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7	- 930P
122	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7	- 930P
		L	T T	7	- 930P



123	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
210	3	L	M W F	1	MCDONALD
212	3	L	M W F	10	ROBERTS
215	5	L	MTWTF	2	LARMOUR
231	3	L	M W F	11	
232	3	L	M W F	10	BURNHAM
233	3	L	M W F	9	BURNHAM
240	3	L	M W F	9	
609	3	L	M W F	10	GRIMM
612	5	L	MTWTF	2	RULE
614	5	L	MTWTF	11	ROGEL
618	5	L	MTWTF	2	DORPALEN
620	3	L	M W F	1	FISHER
628	5	L	MTWTF	10	
633	5	L	MTWTF	11	POIRIER
636	3	L	M W F	11	MORLEY
642	3	L	M W F	12	FISHER
645	5	L	MTWTF	2	
647	5	L	MTWTF	1	MINEAR
653	5	L	MTWTF	2	WILKIE
658	5	L	MTWTF	10	CHAPIN
662	3	L	M W F	11	DILLON
666	3	L	M W F	10	BRODY
673	5	L	MTWTF	12	YOUNG
675	5	L	MTWTF	1	
676	5	L	MTWTF	9	WEISENBURGER
681	3	L	M W F	10	BURNHAM
693	1-03	I		ARR	
694	1-05	I		ARR	
722	3	L	M W F	9	ANKORI
723	3	L	M W F	11	ANKORI
730	3	D	T	330- 530	DORPALEN
783	3-05	I		ARR	
802	3	S	W	3 - 5	MORLEY
805	3	S	T	3 - 5	RULE
814	3	S	T	1 - 3	COLES
845	3	S	T	3 - 5	
850	3	S		ARR	
867	3	S	T	3 - 5	WEISENBURGER
869	3	S	T	3 - 5	COLES
872	5	D	M W	2 - 4	BRODY
899	1-05	S		ARR	
999		I		ARR	

SPRING QUARTER

101 5 L MTWTF 8

		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	T T	7 - 930P	
102	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	T T	7 - 930P	
103	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T T	7 - 930P	
104	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7 - 930P	
		L	T T	7 - 930P	
121	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T T	7 - 930P	
122	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T T	7 - 930P	
123	5	L	MTWTF	8	
		L	MTWTF	8	
		L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	9	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	10	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	1	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	2	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	3	
		L	MTWTF	4	
		L	MTWTF	4	
		L	M W	7 - 930P	
		L	T T	7 - 930P	
		L	T T	7 - 930P	

211 3 L M W F 1

231 3 L M W F 11

232 3 L M W F 10

BRODY

History (Cont'd)

233	3	L	M W F	9	BURNHAM
301	3	L	M W F	3	RULE
602	3	L	M W F	2	MCDONALD
603	5	L	MTWTF	1	MCDONALD
611	3	R	M W F	12	
613	5	L	MTWTF	2	RULE
616	5	L	MTWTF	11	LARMOUR
622	5	L	MTWTF	11	POIRIER
629	5	L	MTWTF	10	
631	5	L	MTWTF	10	ROBERTS
637	3	L	M W F	11	MORLEY
643	3	L	M W F	12	FISHER
648	5	L	MTWTF	9	MINEAR
649	5	L	MTWTF	3	WILKIE
650	5	L	MTWTF	9	
652	5	L	MTWTF	2	WILKIE
659	5	L	MTWTF	2	
660	5	L	MTWTF	2	YOUNG
664	5	L	MTWTF	9	WEISENBURGER
667	3	L	M W F	11	BURNHAM
670	5	L	MTWTF	11	GREEN
674	5	L	MTWTF	12	YOUNG
693	1-03		ARR		
694	1-05	I	ARR		
724	3	L	M W F	9	ANKORI
731	3	D	T	4 - 6	DORPALEN
741	3	L	T T	11	MORLEY
783	3-05	I	ARR		
801	3	S	W	3 - 5	DORPALEN
804	3	S	T	3 - 5	POIRIER
813	3	S	T	3 - 5	ROBERTS
850	3	S		ARR	
863	3	S	M	3 - 5	ANKORI
867	3	S	T	3 - 5	BRODY
880	1	S		ARR	BURNHAM
899	1-05	S	ARR		
999	I		ARR		

228	3	D	T T	10 -12	EVERHART
		D	T T	10 -12	EVERHART
		I		62 HR ARR	
270	3	L	M W	11	
		B	T	10 -12	
		B	T	10 -12	
		L	M F	1	
		B	T	1 - 3	
		B	T	1 - 3	
310	5	L	MTWTF	1	HERR
441	5	I		64 HR ARR	
310	5	L	MTWTF	2	HERR
313	3	D	M W F	3	
314	5	L	M W	9	GREEN
		B	M W F	10 -12	GREEN
		B	T T F	8 -10	GREEN
		B	M W F	3 - 5	GREEN
320	3	D	M W F	11	EVERHART
		D	T T	10 -1130	BLAKEMORE
322	5	L	MTW F	11	BEARD
		L	MTW F	2	BEARD
		B	W	3 - 5	BEARD
		B	T	8 -10	BEARD
		B	T	1 - 3	BEARD
		B	T	3 - 5	BEARD
326	3	D	M W F	9	NEWARK
327	5	D	MTWTF	1	NEWARK
		D	M W F	2 - 330	LLOYD
328	5	D	M W F	8	BLAKEMORE
		B	T T	8 -10	BLAKEMORE
		D	M W F	1	EVERHART
		B	T T	1 - 3	EVERHART
360	5	D	MTWTF	9	TAYLOR
		L	T T	12 - 2	TAYLOR
		D	W	12	TAYLOR
		L	MTW	10	LEHR
		D	T	10 -12	LEHR
		D	MTWTF	2	
362	4	D	M W F	11	GRIFFING
		D	M W F	11	GRIFFING
		I		62 HR ARR	
		D	M W F	11	COOK
		D	M W F	11	COOK
		I		62 HR ARR	
		D	M W F	1	GRIFFING
		D	M W F	1	GRIFFING
		I		62 HR ARR	
363	5	L	M W	2 - 4	HEYER
		D	F	2	HEYER
		L	M W	2 - 4	LEHR
		D	F	2	LEHR
371	5	L	MTW F	8	TAPSCOTT
		B	T	8 -10	TAPSCOTT
		B	T	10 -12	TAPSCOTT
		L	MTW F	10	TAPSCOTT
		B	W	3 - 5	TAPSCOTT
		B	T	1 - 3	TAPSCOTT
374	5	L	T T	1	GOLDSBERRY
		B	M W F	8 -10	GOLDSBERRY
		B	M W F	1 - 3	GOLDSBERRY
413	4	L	M W	9	SMATHERS
		B	T T	10 - 1	SMATHERS
		B	W F	10 - 1	SMATHERS
427	4	D	T T	8 -10	LLOYD
431	5	L	F	8 -10	CREMER
		B	M W	8 -12	CREMER
		B	T T	8 -12	CREMER
441	5	L	M W F	8	
442	15	K		ARR	
462	3	D	MTW	1	SMITH
		D	MTW	1	DICKERSCHIED
463	2	D	F	1	SMITH
		D	F	1	DICKERSCHIED
		B	M W	9 -11	COOK

Home Economics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
90	D		T	9	ALEXANDER
	D		T	9 -11	



	B	T T	9	-11	COOK
	B	F	9	-11	COOK
	I		62	HR ARR	
	B	F	2	041	SMITH
	B	T T	2	- 4	SMITH
	B	W F	2	- 4	SMITH
589.04	15	W		ARR	MILLICAN
589.07	3+05	W		ARR	CREMER
589.08	3+05	W		ARR	DIRKS
589.09	5	W		ARR	HEYE
593.01	3	C		ARR	
593.02	3	C		ARR	
593.03	3	C		ARR	
593.04	3	C		ARR	
593.05	3	C		ARR	
593.06	3	C		ARR	
593.07	3	C		ARR	
593.08	3	C		ARR	
593.09	3	C		ARR	
593.10	3	C		ARR	
615	5	L	M W	2	PRUDENT
	B	T T F	2	- 5	PRUDENT
623	5	D	M W F	9	-11 BLOOM
623	3	I		62	HR ARR
635	3	D	M W	2	- 4 HARGER
663	3	D	T T	10	HENDRICKSON
	I			62	HR ARR
667	3	I		62	HR ARR
	D	T	7	- 930P	HEYE
674	5	D	T T	8	
	B	M W F	8	-10	
794.01	3	C		ARR	
794.02	3	C		ARR	
794.03	3	C		ARR	
794.04	3	C		ARR	
794.05	3	C		ARR	
794.06	3	C		ARR	
794.07	3	C		ARR	
794.08	3	C		ARR	
794.09	3	C		ARR	
794.10	3	C		ARR	
802	3	S		ARR	
840	3	D	T	1	- 230 DALRYMPLE
841	3	D	M	7	- 930P HAAS
845	3	D	W	4	- 630P DIRKS
861	3	D	W	4	- 630
872	3	S		ARR	LAPITSKY
893.01	2+03	C		ARR	
893.02	2+03	C		ARR	
893.03	2+03	C		ARR	
893.04	2+03	C		ARR	
893.05	2+03	C		ARR	
893.06	2+03	C		ARR	

893.07	2+03	C		ARR
893.08	2+03	C		ARR
893.09	2+03	C		ARR
893.10	2+03	C		ARR
999		C		ARR

WINTER QUARTER

110	5	L	MTWTF	12	HERR
270	3	L	M F	10	
	B	T		10	-12
	B	W		10	-12
274	5	L	T T	10	GOLDSBERRY
	B	M W F		10	-12
	I			62	HR ARR
290	3	L	T T	8	SCOTT
310	5	L	MTWTF	11	HERR
314	5	L	M W	9	GREEN
	B	T T F		8	-10
	B	M W F		10	-12
	B	M W F		3	- 5
320	3	D	M W F	9	EVERHART
	D	T T		10	-1130
326	3	D	M W F	9	NEWARK
327	5	D	MTWTF	1	NEWARK
	D			2	- 330
328	5	D	M W F	1	EVERHART
	B	T T		1	- 3
360	5	D	MTWTF	9	TAYLOR
	L	T T		12	- 2
	D	W		12	
	L	MTW		10	
	D	T		10	-12
362	4	D	M W F	11	GRIFFING
	I			62	HR ARR
	D	M W F		11	
	I			62	HR ARR
	D	M W F		2	
	I			62	HR ARR
363	5	L	M W	2	- 4
	D	F		2	
	L	M W		2	- 4
	D	F		2	
371	5	L	MTW F	10	TAPSCOTT
	B	T		8	-10
	B	T		10	-12
	L	MTW F		1	
	B	W		3	- 5
	B	T		1	- 3
374	5	L	T T	1	GOLDSBERRY
	B	M W F		8	-10
	B	M W F		1	- 3
413	4	L	M W	9	SMATHERS
	B	T T		10	- 1
	B	W F		10	- 1
427	4	D	T T	8	-10 LLOYD
430	3	D	T T	2	- 3
431	5	L	F	8	-10
	B	M W		8	-12
	B	T T		8	-12
441	5	L	M W F	8	
	I			62	HR ARR
442	15	K		ARR	
462	3	D	MTW	1	SMITH
	D	MTW		1	DICKERSCHIED

Home Economics    (Cont'd)

463	2	D D B B B I I B B	F F M W T T F M T T W F	1 1 9 -11 9 -11 9 -11 62 HR ARR 2 - 4 62 HR ARR 2 - 4 2 - 4	SMITH COOK SMITH SMITH SMITH COOK COOK
571	5	L B B B B	MTWT T T W F	12 1 - 4 1 - 4 1 - 4 1 - 4	LAPITSKY LAPITSKY LAPITSKY LAPITSKY LAPITSKY
574	5	L B B	M W M W F	1 2 - 4 1 - 4	MILLICAN MILLICAN MILLICAN
589.07	3	W		ARR	
589.08	3	W		ARR	
589.09	3	W		ARR	
590	3	D		ARR	
593.01	3	C		ARR	
593.02	3	C		ARR	
593.03	3	C		ARR	
593.04	3	C		ARR	
593.05	3	C		ARR	
593.06	3	C		ARR	
593.07	3	C		ARR	
593.08	3	C		ARR	
593.09	3	C		ARR	
593.10	3	C		ARR	
598	2	C	W	4 - 6	
610	5	D	MTWTF	2	GREEN
622	5	L B L B	T T M W F T T M W F	9 9 -11 2 2 - 4	BLOOM BLOOM BLOOM BLOOM
630	5	L	MTWTF	1	
662	3	D I	T T 62 HR ARR	2 62 HR ARR	TAYLOR
672	5	L	MTWTF	9	MILLICAN
825	3	D	T T	3 - 430	HUNT
842	3	D	T	9 -1130	HAAS
843	3.05	S	T	9 -1130	DIRKS
862	3.05	S	T	4 - 630	HENDRICKSON
870	5	D I	T T 62 HR ARR	830-10 62 HR ARR	GILMORE
893.01	2.03	C		ARR	
893.02	2.03	C		ARR	
893.03	2.03	C		ARR	
893.04	2.03	C		ARR	
893.05	2.03	C		ARR	
893.06	2.03	C		ARR	
893.07	2.03	C		ARR	
893.08	2.03	C		ARR	
893.09	2.03	C		ARR	

893.10	2.03	C		ARR	
999		C		ARR	
SPRING QUARTER					
110	5	L	MTWTF	8	HERR
230	2	D	M	2 - 4	
270	3	L B B B	M F T W T	11 10 -12 10 -12 10 -12	GOLDSBERRY GOLDSBERRY GOLDSBERRY GOLDSBERRY
310	5	L	MTWTF	10	HERR
314	5	L B B	M W M W F T TF	9 10 -12 8 -10	GREEN GREEN GREEN
320	3	L L	M W F M W F T T	9 11 10 -1130	BLAKEMORE EVERHART EVERHART
322	5	L B B B	MTWT MTWT F F	9 11 10 -12 1 - 3	BEARD BEARD BEARD BEARD
327	5	L	M W F	2 - 330	MALOCH
328	5	L B L B	M W F T T M W F T T	8 8 -10 1 1 - 3	BLAKEMORE BLAKEMORE EVERHART EVERHART
360	5	L L D L D L	MTWTF T T W MTW T MTWTF	9 12 - 2 12 10 10 -12 2	LEHR TAYLOR TAYLOR LEHR LEHR
362	4	L I L I L I	M W F M W F M W F M W F	11 62 HR ARR 11 62 HR ARR 2 62 HR ARR	GRIFFING COOK
363	5	L D	MTW T	2 1 - 3	HENDRICKSON HENDRICKSON
371	5	L B B	MTW F T T	8 8 -10 10 -12	TAPSCOTT TAPSCOTT TAPSCOTT
374	5	L B B	T T M W F M W F	1 8 -10 1 - 3	GOLDSBERRY
413	4	L B B	M W T T W F	9 10 - 1 10 - 1	SMATHERS SMATHERS SMATHERS
422	5	L B	M W F T T	1 1 - 3	BLOOM BLOOM
427	4	L	T T	8 -10	NEWARK
435	4	L	T T	8 -10	DALRYMPLE
441	5	L I	M W F 64 HR ARR	8 64 HR ARR	
442	15	K		ARR	
462	3	D D	MTW MTW	1 1	SMITH DICKERSCHIED
463	2	D D B B B I B I B B	F F M W T T F 62 HR ARR M 62 HR ARR T T W F	1 1 9 -11 9 -11 9 -11 62 HR ARR 2 - 4 62 HR ARR 2 - 4 2 - 4	SMITH COOK SMITH SMITH SMITH COOK COOK COOK COOK
470	5	L	M W F	9 -1030	MILLICAN



571	5	L B B	MTWT T T	12 9 -12 9 -12	LAPITSKY LAPITSKY LAPITSKY
589.07	3	W		ARR	
589.08	3	W		ARR	
589.09	5	W		ARR	
593.01	3	C		ARR	
593.02	3	C		ARR	
593.03	3	C		ARR	
593.04	3	C		ARR	
593.05	3	C		ARR	
593.06	3	C		ARR	
593.07	3	C		ARR	
593.08	3	C		ARR	
593.09	3	C		ARR	
593.10	3	C		ARR	
596	2	S	T T	1	GREEN
612	3	L	M W F	10	PRUDENT
615	5	L B	M W T T F	2 2 - 5	PRUDENT PRUDENT
632	5	L B	M W F W	1 3 - 9 P	
634	3	D D	T T	2 2 - 4	CREMER
674	5	L B	T T M W F	2 2 - 4	
794.09	3	D		ARR	
794.10	3	D	T	7 - 930P	HAAS
822	3	S	T T	10 -1130	DEACON
826	3	D	T T	3 - 430	NEWARK
844	5	D I	T T	8 -10 61 HR ARR	DIRKS
846	3	D	W	730-10	BAILEY
860	3	D	W	4 - 630	TAYLOR
872	3	S		ARR	GILMORE
893.01	2.03	C		ARR	
893.02	2.03	C		ARR	
893.03	2.03	C		ARR	
893.04	2.03	C		ARR	
893.05	2.03	C		ARR	
893.06	2.03	C		ARR	
893.07	2.03	C		ARR	
893.08	2.03	C		ARR	
893.09	2.03	C		ARR	
893.10	2.03	C		ARR	
898	1	C		4	
999		C		ARR	

## Horticulture

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	3	L	M W F	10	REISCH
203	5	BD	MTWTF	11	HARTMAN
422	5	L B	MTWT M	8 2 - 5	KIPLINGER KIPLINGER
432	5	L B B	M W F W F W F	11 1 - 3 3 - 5	REISCH REISCH
461	5	L B	TWTF T	9 1 - 3	HARTMAN HARTMAN
489	2	W		ARR	
593	3.05	C		ARR	
599	2.03	C		ARR	
599	5	C		ARR	
609	5	L B	M W T W T	1 2	KRETCHMAN KRETCHMAN
611	5	L	MTWTF	2	HARTMAN
642	5	L B	M W F M W	8 9 -11	GEISMAN GEISMAN
650	5	L B	M W F T T	1 1 - 3	ALBAN ALBAN
690	2	S		ARR	
694	2.03	C		ARR	
694	5	C		ARR	
699	2	S		ARR	
731	5	L B	MTW F T	9 1 - 4	
794.B	2	L	F	9 -11	GOULD
801.C	2.03	C		ARR	KRETCHMAN
801.D	2.03	C		ARR	ALBAN
801.F	3	C		ARR	GOULD
801.H	2.03	C		ARR	KIPLINGER
804	2	S	M	4	
811	5	L B B	M W W B	2 3 - 5 62 HR ARR	HOWLETT HOWLETT
893	3.05	C		ARR	
897	1	S		ARR	
999		C		ARR	
WINTER QUARTER					
433	5	L B	M W F W F	11 1 - 3	REISCH REISCH
441	5	L B	M W F M W	2 3 - 5	GOULD GOULD
450	5	L B	MT FS W	1 1 - 3	ALBAN ALBAN
462	5	L B	TWTF T	11 3 - 5	HILL HILL
489	2	W		ARR	
593	3.05	C		ARR	
599	2.03	C		ARR	

Horticulture (Cont'd)

599	5	C		ARR	
601	3	L B	M W F	10 10 - 12	BROWN BROWN
622	5	L B	MTWT M	8 2 - 5	KIPLINGER KIPLINGER
690	2	S		ARR	
694	2+03	C		ARR	
694	5	C		ARR	
699	2	S		ARR	
732	5	L B	MTW F T	9 1 - 3	
741	5	L B	M W F T T	8 8 - 10	GOULD GOULD
794.C	2	L	F	3 - 5	GEISMAN
801.B	2-03	C		ARR	
801.E	2-03	C		ARR	
801.F	2-03	C		ARR	
804	2	S	M	4	
812	5	L B B	T T W	2 3 - 5 62 HR ARR	HILL HILL
893	2+03	C		ARR	
893	5	C		ARR	
897	1	S		ARR	
999		C		ARR	

SPRING QUARTER

203	5	BD	MTWTF	10	HARTMAN
241	3	L	M W F	1	GOULD
415	5	L B B	M WTF T T	8 1 - 3 3 - 5	
431	5	L B B	M W F M W M W	9 1 - 3 3 - 5	
434	5	L B	M W F W F	11 1 - 3	REISCH
442	5	L B	M W F T T	2 1 - 3	GOULD GOULD
489	2	W		ARR	
593	2+03	C		ARR	
593	5	C		ARR	
599	2+03	C		ARR	
599	5	C		ARR	
610	3	C	M W F	2	ALBAN
623	5	*L B	MTWT M	8 2 - 5	KIPLINGER KIPLINGER
624	5	L B	MT T T T	10 1 - 3	KIPLINGER REISCH
652	5	L B	MTW F T	8 - 9 3 - 5	BROWN BROWN
690	2	S		ARR	
694	2+03	C		ARR	
694	5	C		ARR	

699	2	S		ARR	
733	5	L B	MTW F T	9 1 - 4	
794.D	2	L	W F	8	GOULD
801.A	2-03	C		ARR	
801.F	3	L		ARR	GOULD
801.G	2-03	C			
801.I	3	C		ARR	REISCH
893	2+03	C		ARR	
893	5	C		ARR	
897	1	S		ARR	
898	1	S		ARR	
999		C		ARR	

Industrial Engineering

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201	3	LB	M W F	8 - 10	
202	5	LB	MTWTF	12 - 2	
401	4	B L	M W F T T	2 - 4 2	
403	5	L	MTWTF	11	
431	3	LB	T T	10 - 12	
501	5	L B B	M W F T T T T	9 9 - 11 1 - 3	
502	5	L B	M W F T T	8 3 - 5	
503	3	L L	M W F M W F	10 11	
506	5	L B	M W F T T	10 10 - 12	
531	3	LB	M W F	1 - 3	
532	3	LB LB	M W M W	8 - 10 1 - 3	
534	4	L L	M WTF MTW F	8 1	
602	3	L	M W F	9	BISHOP
685	6	W			BAKER
693	1-06	C		ARR	
750.02	3	L	T	1 - 4	BAKER
750.03	3	L	M W F	10	
750.04	3	L	M W F	1	BISHOP
750.05	3	L	M W F	8	MORRIS
750.08	3	L	M W F	9	MORRIS
750.09	3	L	M W F	11	BROWN
750.10	3	L	M W F	2	OVERBY
811	3-12	C		ARR	
821	3-12	C		ARR	KIBBEY



828	3-12	C		ARR	MILLER
84n	3	C		ARR	
842	3	L	M W F	12	GIFFIN
851	3-12	C		ARR	BAKER
861	3-12	C		ARR	BISHOP
862	3	L		ARR	MORRIS
863	3	L	M W F	2	BISHOP
866	3-12	C		ARR	BISHOP
871	3-12	C		ARR	ROCKWELL
881	2	S	M	7 - 9 P	
899	1-05	S		ARR	
999		I		ARR	

WINTER QUARTER

401	4	B L B L	M W F T T M W F T T	8 -10 8 10 -12 10	
402	5	L B L B	M W F T T M W F T T	1 12 - 2 2 2 - 4	
501	5	L B	M W F T T	9 8 -10	
503	3	L	M W F	11	
504	3	L L	M W F M W F	11 1	
505	5	L B B	T T S T T S T T	9 10 -12 1 - 4	KIBBEY KIBBEY KIBBEY
532	3	LB LB	M W M W	1 - 3 3 - 5	
534	4	L	MTW F	9	
601	3	L L	M W F M W F	10 2	BROWN BROWN
693	1-06	C		ARR	
75n.02	3	L	T	1 - 4	BAKER
75n.06	3	L	M W F	9	BISHOP
75n.07	3	L	M W F	3	MORRIS
75n.08	3	L	M W F	10	MORRIS
75n.10	3	L	M W F	2	OVERBY
75n.11	3	L	M W F	2	MILLER
75n.13	3	L	M W F	1	ROCKWELL
811	3-12	C		ARR	BAKER
812	3	L	M W F	8	
821	3-12	C		ARR	KIBBEY
828	3-12	C		ARR	MILLER
84n	3	C		ARR	
843	3	L	M W F	12	GIFFIN
851	3-12	C		ARR	BAKER
861	3	C		ARR	MORRIS
863	3	L	M W F	12	BISHOP
866	3-12	C		ARR	BISHOP
871	3-12	C		ARR	ROCKWELL
881	2	S	M	7 - 9 P	

899	1-05	S		ARR	
999		I		ARR	

SPRING QUARTER

201	3	LB	M W F	2 - 4	
202	5	LB	MTWTF	12 - 2	
401	4	B L L L	M W F T T T T T T	10 -12 10 10 10	
402	5	L B	M W F T T	8 8 -10	
403	5	L L	MTWTF MTWTF	9 10	
502	5	L B B	M W F M W T T	8 10 -12 10 -12	
504	3	L	M W F	10	
505	5	L B	T T S T T S	9 10 -12	
506	5	L B B	M W F T T T T	9 8 -10 1 - 3	
532	3	LB LB LB	T T T T T T	8 -10 1 - 3 3 - 5	
533	3	L	M W F	4	
589	2	F			
601	3	L	M W F	11	BROWN
602	3	L L	M W F M W F	1 2	BISHOP
693	1-06	C		ARR	
75n.02	3	L 1	T	1 - 4	BAKER
75n.03	3	L	M W F	3	GIFFIN
75n.05	3	L	M W F	11	MORRIS
75n.09	3	L	M W F	1	BROWN
75n.12	3	L B B	T T T T T T	2 12 - 2 3 - 5	KIBBEY
75n.13	3	L	M W F	2	ROCKWELL
811	3-12	C		ARR	BAKER
821	3-12	C		ARR	KIBBEY
828	3-12	C		ARR	MILLER
84n	3	C		ARR	
844	3	L	M W F	8	
851	3-12	M		ARR	BAKER
861	3-12	C		ARR	MORRIS
862	3	L	M W F	9	MORRIS
863	3	L	M W F	12	BISHOP
866	3-12	C		ARR	BISHOP
871	3-12	C		ARR	ROCKWELL
881	2	S	T	3 - 5	
899	1-05			ARR	
999		I		ARR	

International Studies

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

230	5	L	MTWTF	3	
783	3-05	S		ARR	

WINTER QUARTER

100	5	L	MTWTF	2	
230	5	L	MTWTF	3	
501	5	L	MTWTF	3	
783	3-05	S		ARR	

SPRING QUARTER

235	5	L	MTWTF	2	
783	3-05	S		ARR	

Italian

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	2	
103	5	R	MTWTF	10	
		R	MTWTF	12	
104	5	R	MTWTF	11	
423	5	LR	MTWTF	11	CASELL
623	5	LR	MTWTF	10	MANCINI
693	1-05	C		ARR	
794	1-05	C		ARR	
999		I		ARR	

WINTER QUARTER

101	5	R	MTWTF	9	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	2	
102	5	R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
104	5	R	MTWTF	1	
421	5	LR	MTWTF	11	MANCINI
622	5	LR	MTWTF	10	MANCINI
622	3	LR	M W F	11	CASELL
693	1-05	C		ARR	
794	1-05	C		ARR	
999		I		ARR	

SPRING QUARTER

101	5	R	MTWTF	9	
		R	MTWTF	11	
102	5	R	MTWTF	10	
		R	MTWTF	12	
103	5	R	MTWTF	10	
		R	MTWTF	11	
202	5	R	MTWTF	1	
422	5	LR	MTWTF	11	CASELL
534	5	D	MTWTF	10	MANCINI
693	1-05	C		ARR	
794	1-05	C		ARR	
999		I		ARR	

Japanese

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	R	MTWTF	9	KAWAI
104	5	R	MTWTF	1	KAWAI
251	5	L	MTWTF	2	WRIGHT
609	3	R	M W F	11	WRIGHT
693	2-05	D		ARR	

WINTER QUARTER

102	5	R	MTWTF	9	KAWAI
252	5	L	MTWTF	2	WRIGHT
405	3	R	M W F	1	KAWAI
610	3	R	M W F	11	WRIGHT
624	5	L	MTWTF	10	FILLMORE
693	2-05	D		ARR	

SPRING QUARTER

103	5	R	MTWTF	9	KAWAI
406	3	R	M W F	1	KAWAI
611	3	R	M W F	11	WRIGHT
626	5	L	MTWTF	3	FILLMORE
651	3	R	M W F	2	WRIGHT
693	2-05	D		ARR	



# Journalism

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	3	L R R R	M T W T	F 4 4 4	
102	3	D	M W F	4	
201	3	L B L B L B	M T T M W F M	8 8 -10 9 -10 4 3 - 5	
202	3	L B L B	M T T M W F	1 1 - 3 2 1 - 3	
203	3	L B B L B B	M W M T M W W T	9 2 - 4 2 - 4 11 2 - 4 2 - 4	
204	3	L B L B L B	M W T M W T M F W	10 10 -12 1 1 - 3 3 3 - 5	
205	2	B		ARR	
206	3	D	M W F	10	
211	3	L B	M W T	3 3 - 5	GAUMER GAUMER
401	3	L B	T T T	10 1 - 3	DRENTEN DRENTEN
555.01	5	D D D	MTWTF MTWTF MTWTF	9 11 2	
555.02	5	D	MTWTF	10	
555.03	5	D	MTWTF	1	
555.04	5	D	MTWTF	4	
601	3	D D D	M W F T M W F	10 7 -10 P 2	
602	3	D	M W F	1	
611	3	L B	M W T	10 1 - 3	DRENTEN DRENTEN
612	3	B	M W	1 - 3	DRENTEN
621.01	2	B		ARR	
621.02	2	B		ARR	DRENTEN
621.03	2	B		ARR	
622.01	2-04	B		ARR	
622.02	2-04	B		ARR	DRENTEN
622.03	2-04	B		ARR	
623	3	D	M W F	11	
624	3	D	T	1 - 4	
625	3	L B	T	1 - 4	MULLINS
626	5	L B	MTWT T	11 2 - 5	GAUMER GAUMER
627	3	L B	M T T	8 8 -10	

631	3	L L	M W F M	9 7 -10 P	SEIFERT SEIFERT
634	3	L	W	7 -10 P	SEIFERT
641	5	L B	MTWT F	10 10 -12	MULLINS MULLINS
642	3	L S	T T	9 9 -11	MAGUIRE MAGUIRE
643	3-05	S	M W F	11	GOULD
651	3	L	M W F	9	
693.01	3-05	I		ARR	MAGUIRE
693.02	3-05	I		ARR	DRENTEN
693.03	3-05	I		ARR	
693.04	3-05	I		ARR	NORTON
693.05	3-05	I		ARR	SEIFERT
783	3-05	S	W F	8 - 9	HUDSON
801	3-05	S	M W	3 - 5	
811	5	S S	T T M W	3 - 5 3 - 5	GOULD
899	1-05	S		ARR	
999				ARR	
WINTER QUARTER					
101	3	L R R R	M T W T	F 4 4 4	
102	3	D	M W F	1	
201	3	L B L B L B	M T T M W F M T T	8 8 -10 9 -10 4 3 - 5	
202	3	L B L B	M T T M W F	1 1 - 3 2 1 - 3	
203	3	L B B L B B	M W M T M W W T	9 2 - 4 2 - 4 11 2 - 4 2 - 4	
204	3	L B L B L B	M W T M W T M F W	10 10 -12 1 1 - 3 3 3 - 5	
205	2	B		ARR	
206	3	D	M W F	10	
211	3	L B	M W T	3 3 - 5	GAUMER GAUMER
401	3	L B	T T T	10 1 - 3	DRENTEN DRENTEN
555.01	5	D D D	MTWTF MTWTF MTWTF	9 11 2	
555.02	5	D	MTWTF	10	
555.03	5	D	MTWTF	1	
555.04	5	D	MTWTF	4	
601	3	D D D	M W F T M W F	10 7 -10 P 2	
602	3	D	M W F	1	

## Journalism (Cont'd)

611	3	L B	M W T	10 1 - 3	DRENTEN DRENTEN
612	3	B	M W	1 - 3	DRENTEN
621.01	2	B		ARR	
621.02	2	B		ARR	DRENTEN
621.03	2	B		ARR	
622.01	2-04	B		ARR	
622.02	2-04	B		ARR	DRENTEN
622.03	2-04	B		ARR	
623	3	D	M W F	11	
624	3	D	T	1 - 4	
625	3	LB	T	1 - 4	MULLINS
626	5	L B	MTWT T	11 2 - 5	GAUMER GAUMER
627	3	L B	M T T	8 8 - 10	
632	3	L L	M W F M	9 7 - 10 P	SIEFERT SIEFERT
641	5	L B	MTWT F	10 10 - 12	MULLINS MULLINS
642	3	L S	T T	9 9 - 11	MAGUIRE MAGUIRE
643	3-05	S	M W F	11	GOULD
651	3	L	M W F	9	
693.01	3-05	I		ARR	MAGUIRE
693.02	3-05	I		ARR	DRENTEN
693.03	3-05	I		ARR	
693.04	3-05	I		ARR	NORTON
693.05	3-05	I		ARR	SIEFERT
783	3-05	I	W F	8	HUDSON
802	3-05	S	M W	3 - 5	
812	5	S	T T	3 - 5	GOULD
899	1-05	S		ARR	
999				ARR	

## SPRING QUARTER

101	3	L R R R	M F T W T	4 4 4 4	
102	3	D	M W F	1	
201	3	L B L B L B	M T T M W F T T	8 8 - 10 9 8 - 10 4 3 - 5	
202	3	L B L B L B	M T T M W F M W	1 1 - 3 2 1 - 3 11 3 - 5	
203	3	L B B L B B	M W M T M W W T	9 2 - 4 2 - 4 11 2 - 4 2 - 4	

204	3	L B L B L B	M W T M W T M F W	10 10 - 12 1 1 - 3 3 3 - 5	
205	2	B		ARR	
206	3	O	M W F	10	
211	3	L B	M W T	3 3 - 5	GAUMER GAUMER
401	3	L B	T T T	10 1 - 3	DRENTEN DRENTEN
555.01	5	D D D	MTWTF MTWTF MTWTF	9 11 2	
555.02	5	D	MTWTF	10	
555.03	5	D	MTWTF	1	
555.04	5	D	MTWTF	4	
601	3	D D	M W F T	10 7 - 10 P	
602	3	D	M W F	1	
611	3	L B	M W T	10 1 - 3	DRENTEN DRENTEN
612	3	B	M W	1 - 3	DRENTEN
621.01	2	B		ARR	
621.02	2	B		ARR	DRENTEN
621.03	2	B		ARR	
622.01	2-04	B		ARR	
622.02	2-04	B		ARR	DRENTEN
622.03	2-04	B		ARR	
623	3	D	M W F	11	
624	3	D	T	1 - 4	
625	3	LB	T	1 - 4	MULLINS
626	5	L B	MTWT T	11 2 - 5	GAUMER GAUMER
627	3	L B	M T T	8 8 - 10	
631	3	L	M W F	9	SEIFERT
633	3	L L	M W F M	11 7 - 10 P	SEIFERT SEIFERT
641	5	L B	MTWT F	10 10 - 12	MULLINS MULLINS
642	3	L S	T T	9 9 - 11	MAGUIRE MAGUIRE
643	3-05	S	M W F	11	GOULD
651	3	L	M W F	9	
693.01	3-05	I		ARR	MAGUIRE
693.02	3-05	I		ARR	DRENTEN
693.03	3-05	I		ARR	
693.04	3-05	I		ARR	NORTON
693.05	3-05	I		ARR	SEIFERT
783	3-05		T T	8 - 9	HUDSON
803	3-05	S	M W	3 - 5	
813	5	S	T T	3 - 5	GOULD
899	1-05	S		ARR	
999				ARR	



# Landscape Architecture

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
201	3	L	M W F	10	TOBEY
611	6	L B	T MTWTF	1 2 - 5	THORNBERRY THORNBERRY
621	4	L B	T MTW F	11 9 - 11	THORNBERRY THORNBERRY
661	3	L B B	T M W F	11 11 63 HR ARR	THORNBERRY THORNBERRY
693	2-10	I		ARR	
711	6	L B	T MTWTF	1 2 - 5	RIEMER RIEMER
721	4	L B	T MTW F	9 9 - 11	TOBEY TOBEY
750	3	L	M W F	8	TOBEY

WINTER QUARTER					
202	3	L	M W F	10	TOBEY
300	3	L	M W F	9	TOBEY
612	6	L B	T MTWTF	1 2 - 5	THORNBERRY THORNBERRY
622	4	L B	T MTW F	11 9 - 11	THORNBERRY THORNBERRY
662	3	L B B	T M W F	11 11 63 HR ARR	THORNBERRY THORNBERRY
693	2-10	I		ARR	
712	6	L B	T MTWTF	1 2 - 5	RIEMER RIEMER
722	4	L B	T MTW F	9 10 - 12	TOBEY TOBEY

SPRING QUARTER					
200	5	L B	M W F T T	3 1 - 5	TOBEY TOBEY
203	3	L	M W F	10	TOBEY
613	6	L B	T MTWTF	1 2 - 5	THORNBERRY THORNBERRY
623	4	L B	T MTW F	11 9 - 11	THORNBERRY THORNBERRY
663	3	L B B	T M W F	11 11 3 HR ARR	THORNBERRY THORNBERRY
693	2-10	I		ARR	
713	6	L B	T MTWTF	1 2 - 5	RIEMER RIEMER
723	4	L B	T MTW F	9 10 - 12	TOBEY TOBEY

# Latin

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
50	5	R	MTWTF	8	
101	5	R R	MTWTF MTWTF	9 1	
103	5	R	MTWTF	8	
104	5	R	MTWTF	12	
200	5	DR	MTWTF	10	
303	3	DR	M W F	8	
304	1	DR	T	3	
339	3	DR	M W F	11	
617	3	DR	M W F	2.	TITCHENER
693	1-06	CDR	T	7 - 9 P	MORFORD
800	3	DR	T T	9	FORBES
809	4	S	M	3 - 5	BABCOCK
820	3	DR	M W F	11	ABBOTT
850	3	DR	M W F	10	TITCHENER
860	3	DR	T T	10	ABBOTT
999		I		ARR	

WINTER QUARTER					
102	5	R R	MTWTF MTWTF	9 2	
103	5	R	MTWTF	12	
104	5	R	MTWTF	8	
201	5	DR	MTWTF	11	
305	1	DR	T	3	
312	3	DR	T T	12	
340	3	DR	M W F	10	ABBOTT
615	3	DR	M W F	11	BARMANN
693	1-06	CR		ARR	
803	4	S	M W F	10	TITCHENER
827	3	DR	M W F	12	ABBOTT
851	4	DR	M W F	9	ABBOTT
856	3	DR	T	2 - 4	MORFORD
861	3	S	T	2 - 5	TITCHENER
995	5	S	M	2 - 5	MORFORD
999		I		ARR	

SPRING QUARTER					
103	5	R R	MTWTF MTWTF	8 1	
104	5	R	MTWTF	8	
202	5	DR	MTWTF	10	ABBOTT
306	1	DR	T	3	
344	3	DR	M W F	9	
612	3	DR	W	2 - 4	MORFORD
616	3	DR	M W F	12	

## Latin (Cont'd)

625	3	DR	M W F	3	FORBES
805	4	S	M W F	12	ABBOTT
852	4	DR	T T	1030-12	BABCOCK
862	3	S	T	2 - 5	TITCHENER
993	1-04	C		ARR	
996	5	S	M	2 - 5	MORFORD
999	1			ARR	

## Law

No.	Crd't.	Sec.	Day	Time.	Instructor
AUTUMN QUARTER					
50n		D		ARR	RUTLEDGE
501		K		ARR	
503	3	D		ARR ARR ARR	CALDWELL NORDSTROM STANGER
504	2	D		ARR ARR	CARPENTER MILLER
505	3	D		ARR ARR	CALLAHAN LYNN
507	3	D		ARR ARR	FINK WILLS
509	2	D		ARR ARR	HERMAN SKLAR
602	4	D		ARR ARR	KELMAN POLLACK
604	3	D		ARR ARR	WILLS
605	3	D		ARR ARR	CLOVIS
607	3	D		ARR	SCHWARZ
608	4	D		ARR ARR	LYNN
612	3	D		ARR	STANGER
613	4	D		ARR	RUTLEDGE
616	3	D		ARR ARR	MESSERMAN
619	3	D		ARR	BURKE
622	3	D		ARR	GLANDER
623	3	D		ARR	DAY
70n		B		ARR	HERMAN
702	4	D		ARR	NORDSTROM
703	2	K		ARR ARR	MESSERMAN CARPENTER
704	1	B		ARR ARR ARR	SLAGLE SKLAR
71n	3	D		ARR	FINK
713	2	B		ARR	HERMAN
718	3	D		ARR	DAY

795	3	S	ARR	LAWRENCE
		S	ARR	CHRISTENSEN
		S	ARR	MAYER
796.17	3	D	ARR	RASKIND
796	3	S	ARR	

## WINTER QUARTER

502		B	ARR	HERMAN
503	3	D	ARR ARR ARR	CALDWELL NORDSTROM STANGER
504	3	D	ARR ARR	CARPENTER MILLER
505	3	D	ARR ARR	LYNN FINK
507	3	D	ARR ARR	FINK WILLS
509	2	D	ARR ARR	HERMAN SKLAR
51n	3	D	ARR ARR	ROSEN SCHWARZ
60n		B	ARR	HERMAN
601	4	D	ARR	RUTLEDGE
603	3	D	ARR ARR	MESSERMAN SLAGLE
606	4	D	ARR ARR	RASKIND
607	2	D	ARR ARR	SCHWARZ CLOVIS
609	3	D	ARR ARR	NORDSTROM
614	3	D	ARR	
618	3	D	ARR	CALLAHAN
621	3	D	ARR	STANGER
703	2	K	ARR ARR	MESSERMAN CARPENTER
704	1	B	ARR ARR ARR	SLAGLE SKLAR
707	3	D	ARR ARR	WILLS
708	3	D	ARR	BERNSTEIN
711	3	D	ARR	LYNN
712	3	D	ARR ARR	FINK
714	2	D	ARR	
717	3	D	ARR	DAY
795	3	S	ARR	
796	3	S	ARR	

## SPRING QUARTER

502		B	ARR	HERMAN
503	3	D	ARR ARR ARR	CALDWELL NORDSTROM STANGER
504	3	D	ARR ARR	CARPENTER MILLER
506	3	D	ARR ARR	CALLAHAN LYNN



507	3	D D	ARR ARR	FINK WILLS
51n	3	D D	ARR ARR	ROSEN SCHWARZ
60n		B	ARR	HERMAN
603	3	D D	ARR ARR	MESSERMAN SLAGLE
607	3	D D	ARR ARR	SCHWARZ CLOVIS
61n	3	D	ARR	NORDSTROM
611	3		ARR	HERMAN
615	3	D	ARR	ROSEN
617	3	D D	ARR ARR	GLANDER LYNN
62n	3	D	ARR	POLLACK
626	3	D	ARR	BURKE
70n		B	ARR	HERMAN
703	2	K K	ARR ARR	MESSERMAN CARPENTER
704	1	B B B	ARR ARR ARR	SKLAR SLAGLE
705	3	D	ARR	CALDWELL
706	4	D	ARR	MILLER
709	3	D	ARR	CLOVIS
713	2	B	ARR	HERMAN
715	3	D	ARR	RASKIND
716	3	D	ARR	DAY
72n	3	D	ARR	BERNSTEIN
721	3	D	ARR	

WINTER QUARTER						
201	5	L L	MTWTF MTWTF	9 10		
601	5	L	MTWTF	11		FILLMORE
602	5	L	MTWTF	11		DRACHMAN
671	5	L	MTWTF	3		STAMPE
672	5	LR	MTWTF	11		LEHISTE
681	5	L	MTWTF	2		LANGENDOEN
693	1-05	S		ARR		
795	3-05	S	M W	4 - 530		DRACHMAN
801	5	L	MTWTF	2		CALLAGHAN
803	5	L		ARR		NAYLOR
821	5	S	T T	4 - 530		STAMPE
999	1-05	I		ARR		

SPRING QUARTER						
201	5	L L	MTWTF MTWTF	9 10		
603	5	L	MTWTF	11		STAMPE
65n	5	LR	MTWTF	2		CALLAGHAN
672	5	LR	MTWTF	2		FILLMORE
693	1-05	S		ARR		
795	3-05	S	M W	4 - 530		DRACHMAN
802	5	L	MTWTF	3		CALLAGHAN
803	5	L	MTWTF	11		LEHISTE
811	5	L	MTWTF	3		LANGENDOEN
82n	5	S	T T	4 - 530		LANGENDOEN
999	1-05	I		ARR		

## Linguistics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
201	5	L L	MTWTF MTWTF	9 10	
60n	3	LR	M W F	11	LEHISTE
601	5	L	MTWTF	2	FILLMORE
672	5	LR	MTWTF	2	STAMPE
673	5	L	MTWTF	11	LANGENDOEN
679	5	L	MTWTF	3	CALLAGHAN
693	5	S	MTWTF	11	CALLAGHAN
693	1-05	S		ARR	
795	3-05	S	M W	4 - 530	STAMPE
803	5	L	MTWTF	2	DRACHMAN
812	5	L	MTWTF	3	FILLMORE
822	5	S	T T	4 - 530	LANGENDOEN
999		I		ARR	

## Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	D D D D D	MTWTF MTWTF MTWTF MTWTF MTWTF	11 1 2 6 7	
108	5	D	MTWTF	2	
116	5	D D D D	MTWTF MTWTF MTWTF MTWTF	10 12 4 6	
117	5	LR LR	MTWTF MTWTF	12 4	
121	5	LR L R R	MTWTF M W F T T T T	9 10 9 10	
122	5	L R R	M W F T T T T	8 8 9	

Mathematics    (Cont'd)

15n	5	D	MTWTF	8	
		D	MTWTF	12	
		D	MTWTF	2	
		D	MTWTF	5	
		D	M W	7	-- 915P
151	5	D	MTWTF	9	
		D	MTWTF	3	
152	5	L	M W F	1	
		R	T T	1	
		L	M W F	3	
		R	T T	3	
153	5	D	MTWTF	10	
		D	MTWTF	12	
		D	T T	7	-- 915P
19n	5	D	MTWTF	12	
205	5	L	M W F	10	
		R	T T	10	
241	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	1	
		D	MTWTF	2	
		D	MTWTF	3	
		D	MTWT	530-- 7 P	
254	5	D	MTWTF	12	
		D	MTWTF	3	
255	5	L	M W F	10	
		R	T T	10	
		R	T T	12	
29n	5	D	MTWTF	12	
294	2-05	D		ARR	
412	3	D	M W F	10	
413	3	D	M W F	12	
421	3	D	M W F	2	
		D	M W F	3	
425	5	L	MTW F	10	
		R	T	10	
		R	T	12	
501	4	D	MTWT	1	
505	5	D	MTWTF	9	
507	5	D	MTWTF	11	
52n	5	L	M W F	10	
		R	T T	10	
		R	T T	11	
528	3	D	M W F	2	
541	5	D	MTWTF	8	
543	5	D	MTWTF	9	
55n	5	D	MTWTF	2	
551	5	D	MTWTF	11	
556	5	D	MTWTF	1	
57n	5	D	MTWTF	11	
593	2-05	D		ARR	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	2	
601	5	D	MTWTF	9	
62n	5	D	MTWTF	11	
629	1-05			ARR	
641	5	D	MTWTF	9	
643	5	D	MTWTF	10	
651	5	D	M W F	2	
		R	T T	1	
		R	T T	2	
662	5	D	MTWTF	9	
67n	5	L	M W F	11	
		R	T T	11	
		R	T T	1	
674	5	D	MTWTF	10	
68n	5	D	MTWTF	3	
693	1-05	I		ARR	
694	5	D	MTWTF	11	
694	2-05	D	MTWTF	9	
		D	MTWTF	11	
		D	MTWTF	2	
		D	MTWTF	3	
		I		ARR	
702	3	D	M W F	2	
72n	3	D	M W F	3	
722	3	D	M W F	1	
741	3	D	M W F	4	
75n	5	D	M W F	2	
		R	T T	2	
753	5	D	MTWTF	10	
755	5	D	MTWTF	9	
76n	3	D	M W F	9	
767	5	D	MTWTF	1	
77n	5	D	M W F	11	
		R	T T	11	
779	5	D	MTWTF	9	
78n	5	D	MTWTF	1	
794	2-05	D	MTWTF	9	
		D	MTWTF	11	
		D	MTWTF	2	
		D	MTWTF	3	
826	3	D	M W F	2	
83n	3	D	M W F	1	
847	5	D	MTWTF	1	
857	3	D	M W F	3	
865	2-05	I		ARR	
873	5	D	MTWTF	11	
876	5	I		ARR	
931	3	D	M W F	2	
949	2-05	I		ARR	
95n	2-05	I		ARR	
951	2-05	I		ARR	
954	2-05	I		ARR	
957	2-05	I		ARR	
959	4	D		ARR	
961	2-05	I		ARR	
97n	5	D	MTWTF	9	
973	5	D	MTWTF	9	
975	5	I		ARR	
978	5	I		ARR	
979	5	I		ARR	
98n	5	I		ARR	



981	2-05	I	ARR
982	5	I	ARR
983	2-05	I	ARR
984	5	I	ARR
985	2-05	I	ARR
986	2-05	I	ARR
987	2-05	I	ARR
988	2-05	I	ARR
989	2-05	I	ARR
990	2-05	I	ARR
996	2-05	I	ARR
997	2-05	I	ARR
998	2-05	I	ARR
999		I	ARR

WINTER QUARTER

105	3	L R R L R R	M W T F M W T F	12 12 12 2 2 2
109	5	D	MTWTF	2
116	5	D D D	MTWTF MTWTF MTWTF	8 3 6
117	5	D D D	MTWTF MTWTF MTWTF	10 1 6
122	5	L R R LR	M W F T T T T MTWTF	9 9 11 11
123	5	L R R	M W F T T T T	8 8 9
150	5	D D D	MTWTF MTWTF MTWTF	11 2 4
151	5	D D D D	MTWTF MTWTF MTWTF M W	9 12 5 7 - 915P
152	5	D D	MTWTF MTWTF	9 3
153	5	D D	MTWTF MTWTF	10 12
191	5	D D	MTWTF MTWTF	12 3
205	5	L R	M W F T T	2 2
241	5	D D D D D D D D D	MTWTF MTWTF MTWTF MTWTF MTWTF MTWTF MTWTF MTWTF MTWT	8 9 10 11 12 1 2 3 530- 7 P
254	5	D D D	MTWTF MTWTF T T	12 3 7 - 915P
255	5	L R R	M W F T T T T	3 3 12
291	5	D	MTWTF	12

294	2-05	D	ARR	
412	3	D	M W F 10	
413	3	D	M W F 1	
414	3	D	M W F 9	
425	5	L R R	MTW F T T	10 10 12
426	5	L R R	MTW F T T	10 10 12
502	4	D	MTWT	1
504	5	L R R	M W F T T T T	10 10 11
505	5	D	MTWTF	3
506	5	D	MTWTF	9
507	5	D	MTWTF	11
521	5	L R R	M W F T T T T	10 10 11
529	3	D	M W F	2
541	5	D	MTWTF	8
543	5	D	MTWTF	9
545	5	D	MTWTF	1
550	5	D	MTWTF	2
551	5	D	MTWTF	2
552	5	D	MTWTF	10
556	5	D	MTWTF	1
571	5	D	MTWTF	11
593	2-05	D D D D D	MTWTF MTWTF MTWTF MTWTF	ARR 10 11 2
602	5	D	MTWTF	9
629	1-05			ARR
645	5	D	MTWTF	10
652	5	D R R	M W F T T T T	2 1 2
671	5	L R	M W F T T	11 1
693	1-05			ARR
694	2-05	D	MTWTF	9
671	5	R	T T	11
694	2-05	D D D	MTWTF MTWTF MTWTF	11 2 3 ARR
703	3	D	M W F	2
705	3	D	M W F	2
721	3	D	M W F	3
740	5	D	MTWTF	10
742	3	D	M W F	4
746	5	D	MTWTF	11
751	5	D R	M W F T T	2 2
754	5	D	MTWTF	10
756	5	D	MTWTF	9

Mathematics (Cont'd)

761	3	D	M W F	9
768	5	D	MTWTF	1
771	5	D	M W F	11
		R	T T	11
779	5	D	MTWTF	9
781	5	D	MTWTF	1
794	2-05	D	MTWTF	9
		D	MTWTF	11
		D	MTWTF	2
		D	MTWTF	3
824	3	D	M W F	1
827	3	D	M W F	2
831	3	D	M W F	1
846	2-05	D	MTWTF	10
		D	ARR	
848	5	D	MTWTF	1
854	5	D	MTWTF	2
858	3	D	M W F	3
866	2-05	S		ARR
874	5	D	MTWTF	11
876	5	S		ARR
877	5	S		ARR
925	3	S		ARR
932	3	D	M W F	2
949	2-05	S		ARR
950	2-05	S		ARR
951	2-05	S		ARR
954	2-05	S		ARR
957	2-05	S		ARR
960	4	D		ARR
961	2-05	S		ARR
971	5	D	MTWTF	9
974	5	D	MTWTF	9
975	5	I		ARR
978	5	I		ARR
979	5	I		ARR
980	5	I		ARR
981	2-05	I		ARR
982	5	I		ARR
983	2-05	I		ARR
984	5	I		ARR
985	2-05	I		ARR
986	2-05	I		ARR
987	2-05	I		ARR
988	2-05	I		ARR
989	2-05	I		ARR
990	2-05	I		ARR
996	2-05	I		ARR
997	2-05	I		ARR
998	2-05	I		ARR

999		I		ARR
SPRING QUARTER				
101	5	D	MTWTF	8
		D	MTWTF	12
		D	MTWTF	2
105	3	L	M W	12
		R	T	12
		R	F	12
		L	M W	2
		R	T	2
		R	F	2
110	5	D	MTWTF	2
116	5	D	MTWTF	8
		L	M W F	12
		R	T T	12
		R	T T	1
		D	MTWTF	1
117	5	D	MTWTF	9
		D	MTWTF	12
		D	MTWTF	4
121	5	LR	MTWTF	1
		L	M W F	3
		R	T T	3
123	5	L	M W F	9
		R	T T	9
		R	T T	11
		LR	MTWTF	11
125	5	D	MTWTF	3
150	5	D	MTWTF	9
		D	MTWTF	3
151	5	D	MTWTF	11
		D	MTWTF	3
152	5	D	MTWTF	10
		D	MTWTF	1
153	5	D	MTWTF	10
		D	MTWTF	12
192	5	D	MTWTF	10
		D	MTWTF	12
241	5	D	MTWTF	8
		D	MTWTF	9
		D	MTWTF	10
		D	MTWTF	11
		D	MTWTF	12
		D	MTWTF	1
		D	MTWTF	2
		D	MTWTF	3
		D	MTWT	530- 7 P
254	5	D	MTWTF	12
		D	MTWTF	3
255	5	L	M W F	2
		R	T T	2
		R	T T	12
292	5	D	MTWTF	12
294	2-05	D		ARR
414	3	D	M W F	1
421	3	D	M W F	2
		D	M W F	3
426	5	L	MTW F	10
		R	T	10
503	4	D	MTWT	1
504	5	L	M W F	2
		R	T T	2
		R	T T	3
506	5	D	MTWTF	3
522	3	L	M W F	10
		R	T T	10
		R	T T	11
541	5	D	MTWTF	8



543	5	D	MTWTF	9
546	5	D	MTWTF	1
550	5	D	MTWTF	9
551	5	D	MTWTF	2
553	5	D	MTWTF	10
557	5	D	MTWTF	1
560	5	D	MTWTF	2
573	5	D	MTWTF	11
574	5	D	MTWTF	1
593	2-05	D	MTWTF MTWTF MTWTF	ARR 10 11 2
603	3	D	M W F	10
608	5	D	MTWTF	12
621	3	D	M W F	9
629	1-05			ARR
641	5	D	MTWTF	9
642	5	D	MTWTF	10
653	5	D R R	M W F T T T T	2 1 2
672	5	L R R	M W F T T T T	11 11 1
693	1-05	I		ARR
694	2-05	D D D D I	MTWTF MTWTF MTWTF MTWTF	9 11 2 3 ARR
694	5	D	MTWTF	11
701	5	D	MTWTF	9
704	3	D	M W F	2
706	5	D	MTWTF	2
726	3	D	M W F	2
743	3	D	M W F	4
752	5	D R	M W F T T	2 2
762	3	D	M W F	9
772	5	D R	M W F T T	11 11
779	5	D	MTWTF	9
782	5	D	MTWTF	1
794	2-05	D D D D	MTWTF MTWTF MTWTF MTWTF	9 11 2 3
825	3	D	M W F	1
828	3	D	M W F	2
832	3	D	M W F	1
855	5	D	MTWTF	2
859	3	D	M W F	3
869	2-05	I		ARR
877	5	I		ARR
926	3	I		ARR
949	2-05	I		ARR

950	2-05	I		ARR
951	2-05	I		ARR
954	2-05	I		ARR
957	2-05	I		ARR
961	2-05	I		ARR
972	5	D	MTWTF	10
975	5	I		ARR
978	5	I		ARR
979	5	I		ARR
980	5	I		ARR
981	2-05	I		ARR
982	5	I		ARR
983	2-05	I		ARR
984	5	I		ARR
985	2-05	I		ARR
986	2-05	I		ARR
987	2-05	I		ARR
988	2-05	I		ARR
989	2-05	I		ARR
990	2-05	I		ARR
996	2-05	I		ARR
997	2-05	I		ARR
998	2-05	I		ARR
999		I		ARR

Mechanical Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
450	4	L	MT TF	11	
			MT TF	3	
501	5	L	MTWTF	9	
		L	MTWTF	1	
503	5	L	MTWTF	11	
505	1	B	M	2 - 5	
		B	F	2 - 5	
510	4	L	MT TF	10	
		L	MTW F	2	
511	5	L	MTWTF	2	
551	5	L	MTWTF	3	
552	4	L	MT TF	8	
		L	MTW F	1	
588	1	L	M	4	MARCO
621	3	L	M W F	3	
625	3	L	M W F	1	BUXTON
640	3	L	M W F	9	
661	4	L	MT TF	8	
		L	MTW F	1	
663	4	L	MTW F	11	

Mechanical Engineering (Cont'd)

67n	3	L	T	3		
		B	T	1	- 5	
693	2-10	CBD		ARR		
72n	3	L	T TF	4		ENGELMAN
741	4	L	MTW F	1		SEPSY
761	3	DBR	M W F	10	-12	
		DBR	M W F	2	- 4	
763	3	DBR	M W F	8	-10	
782	3	CBD	T T	8	-10	
794	3-05	L		ARR		
801	3	L	M W	2	- 315	
812	5	L	MTWTF	1		BRIDGE
822	5	CBD		ARR		
825	5	CBD		ARR		BUXTON
842	5	CBD		ARR		SEDSY
851	3	L	M W	5	- 615	MCLARNAN
86n	3	L	T T	2	- 315	STARKEY
87n	4	L	M W F	10		DOEBELIN
		B		ARR		
88n	3	L	M W	330-	445	DOEBELIN
881	3	L	T T	5	- 615	BRIDGE
888	2	S	T T	10	-12	
999		I		ARR		

WINTER QUARTER

45n	4	L	MT TF	3		
50n	5	L	MTWTF	10		
		L	MTWTF	2		
501	3	L	MTWTF	2		
502	5	L	MTWTF	11		
		L	MTWTF	1		
51n	4	L	MT TF	10		
52n	3	L	M W F	8		
		L	M W F	3		
55n	5	L	MTWTF	12		
552	4	L	MT TF	1		
612	3	L	M W F	8		
		L	M W F	3		
624	3	L	M W F	11		
		L	M W F	2		
661	4	L	MT TF	8		
662	4	L	MT TF	11		
		L	MT TF	2		
693	2-10	CBD		ARR		
721	3	L	M W F	11		ENGELMAN
724	3	L	M W F	10		
742	3	L	M W F	1		SEPSY
761	3	DB	M W F	3	- 5	
762	3	DB	M W F	8	-10	
		DB	M W F	1	- 3	
77n	4	L	M W F	9		DOEBELMAN
		B	T	8	-10	
		B	T	1	- 3	

771	4	L	M W F	10		
		B	T	1	- 3	
		B	T	3	- 5	
		B	T	8	-10	
		B	T	10	-12	
		L	M W F	3		
		B	T	10	-12	
		B	T	3	- 5	
781	3	CBD	T T	8	-10	
		CBD	T T	1	- 3	
794	3-05	L		ARR		
802	3	L	M W	330-	445	
807	3	L	T T	5	- 615	
81n	3	L	M W	2	- 315	HAN
82n	3	L	T T	2	- 315	ENGELMAN
822		CBD		ARR		
825		CBD		ARR		BUXTON
842		CBD		ARR		SEPSY
85n	3	L	T T	330-	445	STARKEY
999		I		ARR		

SPRING QUARTER

50n	5	L	MTWTF	11		
502	5	L	MTWTF	1		
503	5	L	MTWTF	10		
		L	MTWTF	2		
511	5	L	MTWTF	9		
		L	MTWTF	3		
52n	3	L	M W F	8		
55n	5	L	MTWTF	11		
551	5	L	MTWTF	9		
		L	MTWTF	3		
612	3	L	M W F	3		
613	3	L	M W F	4		
621	3	L	M W F	8		
		L	M W F	1		
624	3	L	M W F	2		
64n	3	L	M W F	8		
		L	M W F	1		
662	4	L	MTW F	10		
663	4	L	MTW F	11		
		L	M W F	2		
67n	3	L	T	8		
		B	T	1	- 5	
		B	T	8	-12	
693	2-10	CBD		ARR		
722	3	L	M W F	10		ENGELMAN
726	3	L	M W F	8		JONES
762	3	BD	M W F	8	-10	
763	3	BD	M W F	10	-12	
		BD	M W F	2	- 4	
771	4	L	M W F	3		
		B	T	8	-10	
		B	T	3	- 5	
772	4	L	M W F	1		DOEBELIN
		B	T	10	-12	
		B	T	1	- 3	
781	3	CBD	T T	8	-10	
782	3	CBD	T T	10	-12	
		CBD	T T	2	- 4	



794	3-05	L		ARR	
803	3	L	T T	5 - 615	
811	5	L	M W F	5 - 620	HAN
822		CBD		ARR	
825		CBD		ARR	BUXTON
830	3	L	T T	3 - 415	VELKOFF
841	3	L		ARR	SEPSY
842		CBD		ARR	SEPSY
861	3	L	M W	2 - 315	STARKEY
888	2	S	T T	1 - 3	
999	1			ARR	

Medical Dietetics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201	1	D	W	3 - 5	LEWIS
421	6	L	M	9 -11	PRIDEAUX
		L	T T	11 -12	PRIDEAUX
		B	W F	8 -12	PRIDEAUX
		B	T T	1 - 5	PRIDEAUX
636	3	C		ARR	WENBERG
637	3	C		ARR	SCOBIE
644	10	C	T T	3 - 5	CASBERGUE
		K		ARR	CASBERGUE

WINTER QUARTER

422	6	L	M	9 -11	PRIDEAUX
		L	F	8 -10	PRIDEAUX
		B	TWT	9 -12	PRIDEAUX
521	5	L	M W	1 - 3	GILMORE
		B	F	10 -12	GILMORE
636	3	C		ARR	WENBERG
637	3	C		ARR	SCOBIE
645	10	C	T T	3 - 5	CASBERGUE
		K		ARR	CASBERGUE
646	12	C	TWT	3 - 5	SHARP SCOBIE
		K		ARR	SHARP SCOBIE

SPRING QUARTER

423	6	L	F	8 -10	PRIDEAUX
		K	MT	8 -12	PRIDEAUX
522	5	L	T T	2 - 4	GILMORE
		B	F	2 - 4	GILMORE
631	6	L	MTWT	1 - 3	MCCONKEY
		K	WTF	10 -12	MCCONKEY
636	3	C		ARR	WENBERG
637	3	C		ARR	SCOBIE
646	12	C	TWT	3 - 5	SHARP,SCOBIE
		K		ARR	SHARP,SCOBIE

Medical Illustration

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

100		W	2		ARR
693	5	B	2	MTWTF	ARR

WINTER QUARTER

100		W	2		ARR
693	5	B	2	MTWTF	ARR

SPRING QUARTER

100		W	2		ARR
693	5	B	2	MTWTF	ARR

Medical Microbiology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

624	7	LBC		ARR	
793.03	6,12	BS		ARR	BOWMAN
793.03	18	BS		ARR	BOWMAN

WINTER QUARTER

625	3	LBC		ARR	
793.01	6,12	KB		ARR	CRAMBLETT
793.01	18	KB		ARR	HAYNES
793.02	6,12	BC		ARR	HAMPARIAN
793.02	18	BC		ARR	CONANT
793.03	6,12	BS		ARR	BOWMAN
793.03	18	BS		ARR	BOWMAN
793.04	6,12	BCS		ARR	SOMERSON
793.04	18	BCS		ARR	SOMERSON

SPRING QUARTER

793.01	6,12	KB		ARR	CRAMBLETT
793.01	18	KB		ARR	CRAMBLETT
793.04	6,12	BCS		ARR	SOMERSON
793.04	18	BCS		ARR	SOMERSON

**Medical Technology**

No.     Crd't. Sec.     Day     Time     Instructor

AUTUMN QUARTER

512	9	B	ARR	WILSON
515	10	K	ARR	

WINTER QUARTER

513	9	B	ARR	
515	10	K	ARR	

SPRING QUARTER

514	9	B	ARR	EARP
515	10	K	ARR	

**Medicine**

No.     Crd't. Sec.     Day     Time     Instructor

AUTUMN QUARTER

601	4	LDS	ARR	
714	6	KCS	ARR	
715	24	KCS	ARR	
716	6	KCS	ARR	
740	6	KCS	ARR	
751	6	KCS	ARR	
793	1-05	CSB	ARR	
793	6+12	CSB	ARR	
793	18	CSB	ARR	
798	18	I	ARR	
799	18	I	ARR	
850	1-03	S	ARR	
999		I	ARR	

WINTER QUARTER

575		L	S 11 -12	
602	3	DK	ARR	
714	6	KCS	ARR	
715	24	KCS	ARR	
716	6	KCS	ARR	
740	6	KCS	ARR	
751	6	KCS	ARR	
793	1-05			
793	6+12	CSB	ARR	
793	18	CSB	ARR	
798	18	I	ARR	

799	18	I	ARR	
850	1-03	S	ARR	
999		I	ARR	

SPRING QUARTER

603	14	DK	ARR	
661	2	L	T T 8 - 9	
714	6	KCS	ARR	
715	24			
716	6	KCS	ARR	
740	6	KCS	ARR	
751	6	KCS	ARR	
770	3	D	ARR	
793	1-05			
793	6+12	CSB	MTWTF S ARR	
793	18	CSB	ARR	
798	18	I	ARR	
799	18	I	ARR	
850	1-03	S	ARR	
999		I	ARR	

**Metallurgical Engineering**

No.     Crd't. Sec.     Day     Time     Instructor

AUTUMN QUARTER

410	4	L B	M W F 3 - 5	WILLIAMS WILLIAMS
430	3	L	M W F 3	RAPP
440	3	L	M W F 10	MOAZED
489	5	W	ARR	WILLIAMS
500	4	L I	M W F 9 61 HR ARR	HIRTH
530	4	L B	M W F 10 ARR	RAPP RAPP
550	3	L	M W F 8	POWELL
590	2	B B	T T 1 - 5 1 - 5	POWELL POWELL
610	3	L	M W F 1	WILLIAMS
635	3	L B	T T 11 ARR	FONTANA FONTANA
660	3	L	M W F 11	SPRETNAK
670	3	L	M W F 10	SPRETNAK
675	3	L	M W F 8	STAEHLE
693	1-06		ARR	
730	3	L	M W F 1	STPIERRE
745	3	L	T T S 8	POWELL
800	3	L	M W 515- 630P	KOBAYASHI
841	3	L	M W F 10	SPEISER



852	3	L	M W F	9	MOAZED
881	1	S	M	4	ST PIERRE
884	2	C		ARR	
999		I		ARR	

#### WINTER QUARTER

40n	4	L	MT TF	1	RAPP
431	3	L	M W F	10	ST PIERRE
45n	3	L	M W F	9	POWELL
502	3	L	M W F	1	HIRTH
52n	4	L	M W F	11	RAPP
		B		ARR	RAPP
551	3	L	M W F	10	MOAZED
591	2	B	T	1 - 5	MOAZED
		B	T	1 - 5	MOAZED
611	3	L	M W F	2	WILLIAMS
615	3	L	M W F	10	SPRETNAK
62n	3	L	M W F	9	ST PIERRE
671	3	L	M W F	11	SPRETNAK
693	1-06			ARR	
735	3	L	M W F	8	STAEHLE
75n	3	L	M W F	9	MOAZED
801	3	L	M W	515- 630P	KOBAYASHI
831	3	L	M W	2	SPEISER
		L	W	3	SPEISER
842	3	L	M W F	1	SPEISER
855	3	L	T T S	8	POWELL
86n	3	L	M F	3	HIRTH
		L	F	2	HIRTH
881	1	S	M	4	WILLIAMS
884	2	C		ARR	
999		I	M	4	

#### SPRING QUARTER

40n	4	L	MT TF	1	POWELL
42n	4	L	M W F	9	STAEHLE
		B		ARR	STAEHLE
451	3	L	M W F	3	MOAZED
49n	2	B	W	1 - 2	POWELL
		B	W	2 - 5	POWELL
521	4	L	M W F	10	ST PIERRE
		B	M	1 - 4	ST PIERRE
552	3	L	M W F	9	HIRTH
589	2	F		ARR	WILLIAMS
592	2	B	T	1 - 5	MOAZED
		B	T	1 - 5	MOAZED
635	3	L	M W	11	FONTANA
		B		ARR	FONTANA
693	1-06			ARR	
71n	3	L	M W F	3	WILLIAMS
736	3	L	M W F	9	RAPP
74n	3	L	M W F	1	SPEISER
802	3	L	M W	515- 630P	KOBAYASHI
82n	3	L	M W F	11	ST PIERRE

832	3	L	M W F	3	SPEISER
835	3	L	M W F	10	RAPP
845	3	L	M W F	2	MOAZED
851	3	L	M W F	10	SPRETNAK
861	3	L	M W F	9	SPRETNAK
881	1	S	M	4	BECK
884	2	C		ARR	
999		I	M	4	

## Microbiology

No. Crd't. Sec. Day Time Instructor

#### AUTUMN QUARTER

211	5	L	M W F	11	
		B	M W F	1 - 3	
509	5	L	M W F	9	MOTE
		L	M W F	2	BIRKELAND
		B	T T	8 -10	
		B	T T	10 -12	
		B	T T	12 - 2	
		B	T T	2 - 4	
607	5	L	M W F	4	RANDLES
		B	M W	8 -11	
		B	M W	1 - 4	
		B	T T	8 -11	
		B	T T	11 - 2	
		B	M W	9 -12	
		B	M W	12 - 3	
		L B	T T	1	KRIER
		L B	F	11	
		B B	M W F	1 - 3	
		B B	M W F	3 - 5	
609	5	L	M W F	3	FREA DUGAN
		B	M W	10 - 1	
		B	M W	9 -12	
		B	M W	12 - 3	
		B	T T	9 -12	
		B	T T	12 - 3	
625	5	L	M W F	9	RHEINS
		B	T T	11 - 1	
		B	T T	2 - 4	
		B	M W	3 - 5	
693	1-05			ARR	
725	5	L	M W F	2	BIGLEY
		B	M W F	3 - 5	
765	5	L		ARR	
		B		ARR	
88n	3	S		ARR	
897	1	S		ARR	
999		I		ARR	

#### WINTER QUARTER

209	4	L	T T	2	MOTE
		B	T T	3 - 5	
21n	5	L	M W F	2	KLUN
		B	T T	12 - 3	
212	5	L	M W F	10	RANDLES FREA
		B	M W F	1 - 3	

**Microbiology (Cont'd)**

509	5	L L B B B B	M W F M W F T T T T M W M W	9 2 10 -12 1 - 3 11 - 1 3 - 5 3 - 5	MOTE BIRKELAND
605	5	L B	T T M W F	8 -10 8 -10	RANDLES
609	5	L B B B B	M W F M W M W T T M W	3 8 -11 12 - 3 12 - 3 10 - 1	FREA DUGAN
612	5	L B B	T T F M W F M W F	11 1 - 3 3 - 5	KRIER
622	5	L B B B B B	M W F M W M W M W T T T T	4 8 -10 10 -12 1 - 3 10 -12 1 - 3	DODD RHEIN
630	5	L B	M W F M W	11 8 -11	WEISER
652	6	L L B	T T S T T T S	10 11 8 -10	ROSEN RHEINS
693	1-05			ARR	
729	3	L		ARR	KRIER
749	5	L B	M W F T T	11 9 -12	WOLFF
760	5	L B	M W F T T	2 1 - 4	RANDLES
880	3	S		ARR	
897	1	S		ARR	
999	1			ARR	
SPRING QUARTER					
509	5	L L B B B B	M W F M W F T T T T T T T T	9 2 8 -10 10 -12 12 - 2 2 - 4	BIRKELAND MOTE
607	5	L B B B B B	M W F M W M W M W M W T T	4 8 -11 10 - 1 11 - 2 1 - 4 8 -11 1 - 4	RAMDEES
613	5	L L B B	T T F M W F M W F	10 8 1 - 3 3 - 5	KRIER KRIER
622	5	L B B B B B	M W T T T T T M W M W M W	4 2 - 4 11 - 1 8 -10 10 -12 12 - 2 2 - 4	DODD, RHEINS
625	5	L B B B	M W F M W T T T T	3 9 -11 9 -11 1 - 3	BIGLEY
636	5	L B B	M W F M W F M W F	3 8 -10 11 - 1	WEISER
693	1-05			ARR	

734	5	L B	T T T T	2 3 - 5	DUGAN
770	5	L B		ARR ARR	PFISTER
781	5	L B		ARR ARR	
822	3	L		ARR	DODD
824	5	L B		ARR ARR	CHORPENNING CHORPENNING
880	3	S		ARR	
896	1-03	S		ARR	
897	1	S		ARR	
898	1	S		ARR	
999	1			ARR	

**Military Science**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	2	D	T	8 -10	
		D	T	10 -12	
		D	T	12 - 2	
		D	T	2 - 4	
		D	W	8 -10	
		D	W	10 -12	
		D	W	12 - 2	
		D	W	2 - 4	
		D	T	8 -10	
		D	T	10 -12	
		D	T	12 - 2	
		D	T	2 - 4	
		D	F	8 -10	
		D	F	10 -12	
		D	F	12 - 2	
103	2	D	T	8 -10	
		D	T	10 -12	
		D	T	12 - 2	
		D	T	2 - 4	
		D	W	8 -10	
		D	W	10 -12	
		D	W	12 - 2	
		D	T	8 -10	
		D	T	10 -12	
		D	T	12 - 2	
		D	T	2 - 4	
		D	F	8 -10	
		D	F	10 -12	
		D	F	12 - 2	
		B	M	10	
		B	M	11	
		B	M	1	
		B	M	2	
201	2	D	T T	8	
		D	T T	9	
		D	T T	10	
		D	T T	11	
		D	T T	1	
		D	T T	2	
		D	T T	3	
		D	T T	4	
		D	W F	8	
		D	W F	9	
		D	W F	10	
		D	W F	11	
		D	W F	1	
		D	W F	2	
		D	W F	3	
202	2	D	T T	12	
203	2	D	W F	12	
		B	M	10	
		B	M	11	
		B	M	1	
		B	M	2	



301 3 D T T 8 -10  
D T T 10 -12  
D T T 1 - 3  
D T T 3 - 5  
D W F 8 -10  
D W F 10 -12  
D W F 1 - 3  
B M 10  
B M 11  
B M 12  
B M 1  
B M 2  
B M 3

401 3 D T T 8 -10  
D T T 10 -12  
D T T 1 - 3  
D T T 3 - 5  
D W F 8 -10  
D W F 10 -12  
D W F 1 - 3

402 3 D ARR

403 3 D ARR 9  
B M 10  
B M 11  
B M 12  
B M 1  
B M 2  
B M 3

WINTER QUARTER

101 2 D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D W 8 -10  
D W 10 -12  
D W 12 - 2  
D W 2 - 4  
D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D F 8 -10  
D F 10 -12  
D F 12 - 2

102 2 D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D W 8 -10  
D W 10 -12  
D W 12 - 2  
D W 2 - 4  
D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D F 8 -10  
D F 10 -12  
D F 12 - 2

103 2 D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D W 8 -10  
D W 10 -12  
D W 12 - 2  
D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D F 8 -10  
D F 10 -12  
D F 12 - 2  
B M 10  
B M 11  
B M 1  
B 4 M 2

201 2 D T T 12

202 2 D T T 8  
D T T 9  
D T T 10  
D T T 11  
D T T 1  
D T T 2  
D T T 3  
D T T 4  
D W F 8

D W F 9  
D W F 10  
D W F 11  
D W F 1  
D W F 2  
D W F 3

203 2 D W F 12  
B M 10  
B M 11  
B M 1  
B M 2

302 3 D T T 8 -10  
D T T 10 -12  
D T T 1 - 3  
D T T 3 - 5  
D W F 8 -10  
D W F 10 -12  
D W F 1 - 3  
B M 10  
B M 11  
B M 1  
B M 2  
B M 3

401 3 D ARR

402 3 D T T 8 -10  
D T T 10 -12  
D T T 1 - 3  
D T T 3 - 5  
D W F 8 -10  
D W F 10 -12  
D W F 1 - 3

403 3 D ARR 9  
B M 10  
B M 11  
B M 12  
B M 1  
B M 2  
B M 3

SPRING QUARTER

102 2 D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D W 8 -10  
D W 10 -12  
D W 12 - 2  
D W 2 - 4  
D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D F 8 -10  
D F 10 -12  
D F 12 - 2

103 2 D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D W 8 -10  
D W 10 -12  
D W 12 - 2  
D W 2 - 4  
D T 8 -10  
D T 10 -12  
D T 12 - 2  
D T 2 - 4  
D F 8 -10  
D F 10 -12  
D F 12 - 2  
B M 10  
B M 11  
B M 1  
B 4 M 2

201 2 D T T 12

202 2 D W F 12

**Military Science    (Cont'd)**

203	2	D	T T	8	
		D	T T	9	
		D	T T	10	
		D	T T	11	
		D	T T	1	
		D	T T	2	
		D	T T	3	
		D	T T	4	
		D	W F	8	
		D	W F	9	
		D	W F	10	
		D	W F	11	
		D	W F	1	
		D	W F	2	
		D	W F	3	
		B	M	10	
		B	M	11	
		B	M	1	
		B	M	2	
303	3	D	T T	8	-10
		D	T T	10	-12
		D	T T	1	- 3
		D	T T	3	- 5
		D	W F	8	-10
		D	W F	10	-12
		D	W F	1	- 3
		B	M	10	
		B	M	11	
		B	M	1	
		B	M	2	
		B	M	3	
401	3	D		ARR	
402	3	D		ARR	
403	3	D	T T	8	-10
		D	T T	10	-12
		D	T T	1	- 3
		D	T T	3	- 5
		D	W F	8	-10
		D	W F	10	-12
		D	W F	1	- 3
		B	M	9	
		B	M	10	
		B	M	11	
		B	M	12	
		B	M	1	
		B	M	2	
		B	M	3	

**Mineralogy**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
411	5	L	M W F	1	WENDEN
		B	T T	1 - 3	
414	5	L	M W F	11	TETTENHORST
		B	M F	1 - 3	
605	5	L	MTWTF	9	FOSTER
621	5	L	T T	1	EHLERS
		B	M W F	1 - 3	
645	5	L	M W F	3	WENDEN
		B	ARR		
784	3-05	C		ARR	
823	3	B	M W F	3 - 5	EHLERS
831	3	L		ARR	TETTENHORST
875	3	L		ARR	MCLACHLAN
881	1-03	S		ARR	
999		C		ARR	

**WINTER QUARTER**

412	5	L	M W F	10	WENDEN
		B	T T	10 -12	
414	5	L	M W F	11	TETTENHORST
		B	T T	8 -10	
621	5	L	M W	11	EHLERS
		B	M W F	1 - 3	
650	5	L	M W F	1	TETTENHORST
		B	ARR		
665	3	L	M W F	3	WENDEN
706	3	L	M W F	9	FOSTER
722	4	L	T T	9	EHLERS
		B	T T	3 - 5	
784	3-05	C		ARR	
876	3	L		ARR	MCLACHLAN
881	1-03	S		ARR	
999		C		ARR	STAFF

**SPRING QUARTER**

414	5	L	M W F	1	TETTENHORST
		B	T T	8 -10	
624	3	B	M W F	1 - 3	WENDEN
654	5	L	M W F	11	WENDEN
		B	ARR		
730	3	L	M W F	10	TETTENHORST
784	3-05	C		ARR	
807	3	L		ARR	EHLERS
808	3	L		ARR	EHLERS
858	3	L		ARR	MCLACHLAN
881	1-03	S		ARR	
999		C		ARR	

**Music**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
1.01		R		ARR	
1.02		R		ARR	
1.03		R		ARR	
1.04		R		ARR	
1.05		R		ARR	
1.07		R		ARR	
95		L	T T	1	LUCE
98			T T	1	LUCE
99			T T	1	LUCE
100			T T	1	LUCE
141	3	L	M W	8	
		L	M W	6.1 HR ARR	
		L	M W	10	
		L	M W	6.1 HR ARR	
		L	W F	11	
		R		6.1 HR ARR	



		D D	T T	7 7	- 9 - 9	P P	
142	3	L	M W F	9			
143	3	L	M W F	2			
180	1	I	M W	4	- 530		
181	1	I	M W	12			
		I	T T F	12			
182	1	I	T T	4	- 530	SIMMONS	
183	1	I	T T	2		STAIGER	
184	1	I	M W	12		HARDESTY	
		I	T	7	- 930P		
186	1	I	MTWTF	4	- 6	SPOHN	
188	1	I	MTWTF	3		MCGINNIS	
189	1	I	M W	4	- 530	EVANS	
		I	T T	4	- 530	BAKER	
190	1	I	W	7	-10 P	HICKFANG	
191	1	I			ARR		
192	1	I			ARR		
193	1	I			ARR		
194	1	I	T T	2		SUDDENDORF	
199	1	I			ARR		
201.01	1-02	R			ARR		
201.02	1-02	R			ARR		
201.03	1-02	R			ARR		
201.04	1-02	R			ARR		
201.05	1-02	R			ARR		
201.06	1-02	R			ARR		
201.07	1-02	R			ARR		
201.08	1-02	R			ARR		
201.09	1-02	R			ARR		
221	3	L	MTWTF	9		GREEN	
		B		61 HR	ARR		
		L	MTWTF	10		GREEN	
		B		61 HR	ARR		
		L	MTWTF	11		HUFF	
		B		61 HR	ARR		
		L	MTWTF	12		HUFF	
		B		61 HR	ARR		
		L	MTWTF	2		LEVEY	
		B		61 HR	ARR		
		L	MTWTF	3		LEVEY	
		B		61 HR	ARR		
241	3	L	M W F	8			
		B	T T	8			
		L	M W F	2			
		B	T T	2			
261.01	2	LB	MT T F	8		RAST	
		LB	MT T F	9		RAST	
		LB	MT T F	11		RAST	
		LB	MT T F	12		RAST	
		LB	MT T F	3		RAST	
		LB	MT T F	4		RAST	
261.02	2	LB	MT T F	9		MANLEY	
		LB	MT T F	10		MANLEY	
		LB	MT T F	2		MANLEY	
261.03	2	LB	MT T F	8		CULVER	
		LB	MT T F	9		CULVER	
		LB	MT T F	11		CULVER	
		LB	MT T F	3		CULVER	
261.04	2	L	T	8		WILSON	
		B	M W T	8			
		B	M W T	11			
264.01	2	LB	MT T F	10		RAST	
		LB	MT T F	2		RAST	
264.02	2	LB	MT T F	3		MANLEY	

270	3	DB	MTWTF	8			
		DB	MTWTF	9			
		DB	MTWTF	11		SEXTON	
		DB	MTWTF	1			
		DB	MTWTF	4			
		DB	MTWTF	5			
271	2	D	MT T F	9		RAMSEY	
		D	MT T F	10		SIMMONS	
		D	MT T F	11		MANLEY	
		D	MT T F	3			
312	2	I	MT	7	-10 P	HICKFANG	
370	3	DB	MTWTF	11		MCDONALD	
		DB	MTWTF	2		BONNEY	
		DB	MTWTF	3		SEXTON	
		DB	MTWTF	4		MCDONALD	
401.01	1-02	R			ARR		
401.01	4	R			ARR		
401.02	1-02	R			ARR		
401.02	4	R			ARR		
401.03	1-02	R			ARR		
401.03	4	R			ARR		
401.04	1-02	R			ARR		
401.04	4	R			ARR		
401.05	1-02	R			ARR		
401.05	4	R			ARR		
401.06	1-02	R			ARR		
401.06	4	R			ARR		
401.07	1-02	R			ARR		
401.07	4	R			ARR		
401.08	1-02	R			ARR		
401.08	4	R			ARR		
401.09	1-02	R			ARR		
401.09	4	R			ARR		
421	3	L	M W F	9		HUFF	
		L	M W F	11		GREEN	
		L	M W F	2		KUEHEFUMS	
		L	M W F	3		VEDDER	
424	2	B	MTWT	10		VEDDER	
		B	MTWT	11		VEDDER	
		B	MTWT	12		LEVEY	
		B	MTWT	2		LUCE	
		B	MTWT	3		KUEHEFUMS	
427	3	B	M W F	3		WALKER	
501.01	1-02	R			ARR		
501.01	4	R			ARR		
501.02	1-02	R			ARR		
501.02	4	R			ARR		
501.03	1-02	R			ARR		
501.03	4	R			ARR		
501.04	1-02	R			ARR		
501.04	4	R			ARR		
501.05	1-02	R			ARR		
501.05	4	R			ARR		
501.06	1-02	R			ARR		
501.06	4	R			ARR		
501.07	1-02	R			ARR		
501.07	4	R			ARR		
501.08	1-02	R			ARR		

## Music (Cont'd)

501.08	4	R		ARR	
501.09	1-02	R		ARR	
501.09	4	R		ARR	
521	3	L	M W F 10 T T 1030-12 L M W F 2	MCCLURE KUEHEFUHS VEDDER	
531	3	L	M W F 10	BARNES	
56n	3	DB DB	M W F 10 M W F 2	MCGINNIS SIMMONS	
561	5	D B	MTW F 9 T 9 -11	SEXTON SEXTON	
562	3	DB	T T 2 - 4	RAMSEY	
563	5	D B	MTW F 9 T 9 -11	BENNER BENNER	
593	1-05	S		ARR	
594	1-05	S		ARR	
601.01	1-02	R		ARR	
601.01	4	R		ARR	
601.02	1-02	R		ARR	
601.02	4	R		ARR	
601.03	1-02	R		ARR	
601.03	4	R		ARR	
601.04	1-02	R		ARR	
601.04	4	R		ARR	
601.05	1-02	R		ARR	
601.05	4	R		ARR	
601.06	1-02	R		ARR	
601.06	4	R		ARR	
601.07	1-02	R		ARR	
601.07	4	R		ARR	
601.08	1-02	R		ARR	
601.08	4	R		ARR	
601.09	1-02	R		ARR	
601.09	4	R		ARR	
602	2	R		ARR	
625	3	L	M W F 11	BARNES	
632	3	L	T T 9 -1030	WALKER	
633	3	L	M W F 10	KUEHEFUHS	
635	3	D	T T 1030-12	BARNES	
643	3	L	M W F 3		
648	3	L	M W F 10		
68n	2	I	W 4 - 6		
682	3	L	T 7 - 930	HELD	
684	2	B		ARR	HELD
748.01	3	L		ARR	PLATT
786	3	L	M W F 2		MIXTER
79n	1-05	S		ARR	SCHNEIDER
791	1-05	S		ARR	SCHNEIDER
792	1-05	S		ARR	
801.01	2+04	R		ARR	

801.02	2+04	R		ARR	
801.03	2+04	R		ARR	
801.04	2+04	R		ARR	
801.05	2+04	R		ARR	
801.06	2+04	R		ARR	
801.07	2+04	R		ARR	
801.08	2+04	R		ARR	
801.09	2+04	R		ARR	
821	3	L	M W F 9		WALKER
826	5	L	MTWTF 11		PHELPS
833	3	S		ARR	WALKER
835	3	D		ARR	WALKER
836	3	L	T T 3 - 430		POLAND
841	5	L	T T 2 - 330		
847	5	L	T T 1030-1200		MIXTER
861	3	D	T 7 - 930P		SCHNEIDER
875	3	S	M W F 2		SCHNEIDER
878	3	S	M W F 3		SCHNEIDER
899	1-05	S		ARR	
993	1-05	S		ARR	
994.01	3-05	S		ARR	PHELPS
994.02	3-05	S		ARR	SCHNEIDER
994.03	3-05	S	T T 9 -1030		LIVINGSTON
999		S		ARR	

## WINTER QUARTER

1.01		R		ARR	
1.02		R		ARR	
1.03		R		ARR	
1.04		R		ARR	
1.05		R		ARR	
1.07		R		ARR	
96		L	T T 1		LUCE
98			T T 1		LUCE
99			T T 1		LUCE
10n	1		T T 1		LUCE
141	3	L R L L R D D	M W 8 61 HR ARR 10 61 HR ARR W F 11 61 HR ARR T 7 T 7 - 9 P		
142	3	L	M W F 9		
143	3	L	M W F 2		
18n	1	I	M W 4 - 530		
181	1	I I	M W 12 T TF 12		
182	1	I	T T 4 - 530		SIMMONS
183	1	I	T T 2		STAIGER
184	1	I I	M W 12 T 7 - 930P		HARDESTY HARDESTY
187	1	I	M W 4		SPOHN



188	1	I	MTWTF	3	MCGINNIS
189	1	I	M W	4 - 530	EVANS
		I	T T	4 - 530	BAKER
190	1	I	W	7 -10 P	HICKFANG
191	1	I		ARR	
192	1	I		ARR	
193	1	I		ARR	
194	1	I	T T	2	SUDDENDORF
199	1	I		ARR	
201.01	1-02	R		ARR	
201.02	1-02	R		ARR	
201.03	1-02	R		ARR	
201.04	1-02	R		ARR	
201.05	1-02	R		ARR	
201.06	1-02	R		ARR	
201.07	1-02	R		ARR	
201.08	1-02	R		ARR	
201.09	1-02	R		ARR	
222	3	L	MTWTF	9	GREEN
		B		61 HR ARR	
		L	MTWTF	10	GREEN
		B		61 HR ARR	
		L	MTWTF	11	HUFF
		B		61 HR ARR	
		L	MTWTF	12	HUFF
		B		61 HR ARR	
		L	MTWTF	2	LEVEY
		B		61 HR ARR	
		L	MTWTF	3	LEVEY
		B		61 HR ARR	
242	3	L	M W F	8	
		B	T T	8	
		L	M W F	2	
		B	T T	2	
261.01	2	LB	MT TF	9	RAST
		LB	MT TF	12	RAST
		LB	MT TF	4	RAST
261.02	2	LB	MT TF	10	MANLEY
261.05	2	L	T	8	EVANS
		B	M TF	8	EVANS
		L	T	12	EVANS
		B	M TF	12	EVANS
		B	M TF	3	EVANS
261.07	2	LB	MTW F	10	SPOHN
262.01	2	LB	MT TF	8	RAST
		LB	MT TF	10	RAST
		LB	MT TF	11	RAST
		LB	MT TF	2	RAST
		LB	MT TF	3	RAST
262.02	2	LB	MT TF	9	MANLEY
		LB	MT TF	10	MANLEY
		LB	MT TF	2	MANLEY
262.03	2	LB	MT TF	8	CULVER
		LB	MT TF	9	CULVER
		LB	MT TF	11	CULVER
		LB	MT TF	3	CULVER
270	3	DB	MTWTF	8	
		DB	MTWTF	11	
		DB	MTWTF	1	
		DB	MTWTF	4	
		DB	MTWTF	5	
271	2	D	MT TF	9	MCDONALD
		D	MT TF	10	
		D	MT TF	11	RAMSEY
		D	MT TF	3	MANLEY
312	2	I	MT	7 -10 P	HICKFANG
370	3	DB	MTWTF	11	MCDONALD
		DB	MTWTF	2	BONNEY

		DB	MTWTF	3	BONNEY
		DB	MTWTF	3	SEXTON
		DB	MTWTF	4	SEXTON
401.01	1-02	R		ARR	
401.01	4	R		ARR	
401.02	1-02	R		ARR	
401.02	4	R		ARR	
401.03	1-02	R		ARR	
401.03	4	R		ARR	
401.04	1-02	R		ARR	
401.04	4	R		ARR	
401.05	1-02	R		ARR	
401.05	4	R		ARR	
401.06	1-02	R		ARR	
401.06	4	R		ARR	
401.07	1-02	R		ARR	
401.07	4	R		ARR	
401.08	1-02	R		ARR	
401.08	4	R		ARR	
401.09	1-02	R		ARR	
401.09	4	R		ARR	
422	3	L	M W F	9	GREEN
		L	M W F	11	GREEN
		L	M W F	2	KUEHEFUMS
		L	M W F	3	VEDDER
425	2	B	MTWT	10	VEDDER
		B	MTWT	11	VEDDER
		B	MTWT	12	LEVEY
		B	MTWT	2	LUCE
		B	MTWT	3	KUEHEFUMS
428	3	B	M W F	3	
501.01	1-02	R		ARR	
501.01	4	R		ARR	
501.02	1-02	R		ARR	
501.02	4	R		ARR	
501.03	1-02	R		ARR	
501.03	4	R		ARR	
501.04	1-02	R		ARR	
501.04	4	R		ARR	
501.05	1-02	R		ARR	
501.05	4	R		ARR	
501.06	1-02	R		ARR	
501.06	4	R		ARR	
501.07	1-02	R		ARR	
501.07	4	R		ARR	
501.08	1-02	R		ARR	
501.08	4	R		ARR	
501.09	1-02	R		ARR	
501.09	4	R		ARR	
524	3	L	M W F	10	MCCLURE
535	3	D	M W F	1	HUFF
560	3	DB	M W F	2	MCGINNIS
563	5	D	MTW F	9	WILSON
		B	T	9	WILSON

## Music (Cont'd)

564	3	DB	T T	2 - 4	SIMMONS
593	1-05	S		ARR	
594	1-05	S		ARR	
601.01	1-02	R		ARR	
601.01	4	R		ARR	
601.02	1-02	R		ARR	
601.02	4	R		ARR	
601.03	1-02	R		ARR	
601.03	4	R		ARR	
601.04	1-02	R		ARR	
601.04	4	R		ARR	
601.05	1-02	R		ARR	
601.05	4	R		ARR	
601.06	1-02	R		ARR	
601.06	4	R		ARR	
601.07	1-02	R		ARR	
601.07	4	R		ARR	
601.08	1-02	R		ARR	
601.08	4	R		ARR	
601.09	1-02	R		ARR	
601.09	4	R		ARR	
602	2	R		ARR	
621	3	L	T T	2 - 330	
631	3	L	M W F	11	BARNES
634	3	L	M W F	10	KUEHEFUMS
635	3	L	T T	9 -1030	BARNES
644	3	L	M W F	3	
649	3	L	M W F	10	
661	3	DB	M W F	11	SIMMONS
680	2	I	W	4 - 6	
681	3	L	T	7 - 930P	HELD
684	2	B		ARR	HELD
748.11	3	L		ARR	PLATT
790	1-05	S		ARR	SCHNEIDER
791	1-05	S		ARR	SCHNEIDER
792	1-05	S		ARR	
801.01	2.04	R		ARR	
801.02	2.04	R		ARR	
801.03	2.04	R		ARR	
801.04	2.04	R		ARR	
801.05	2.04	R		ARR	
801.06	2.04	R		ARR	
801.07	2.04	R		ARR	
801.08	2.04	R		ARR	
801.09	2.04	R		ARR	
822	3	L	T T	1030-12	BARNES
827	5	L	M W F	11	PHELPS

835	3	L		ARR	BARNES
837	3	S		ARR	PHELPS
838	3	S		ARR	PHELPS
842	5	L	T	9 -1030	
848	5	L	T T	1030-12	HOPPIN
870	3	D	T	7 - 930P	BENNER
876	3	S	M W F	2	SCHNEIDER
879	3	S	M W F	3	CADY
881	3	S		ARR	
899	1-05	S		ARR	
993	1-05	S		ARR	
994.01	3-05	S		ARR	PHELPS
994.02	3-05	S		ARR	SCHNEIDER
994.03	3-05	S	T T	2 - 330	LIVINGSTON
999		S		ARR	

## SPRING QUARTER

1.02		R		ARR	
1.03		R		ARR	
1.04		R		ARR	
1.01		R		ARR	
1.05		R		ARR	
1.07		R		ARR	
97		L	T T	1	LUCE
98			T T	1	LUCE
99			T T	1	LUCE
100	1		T T	1	LUCE
141	3	L	M W	8	
		R		61 HR	ARR
		L	M W	10	
		R		61 HR	ARR
		L	W F	11	
		R		61 HR	ARR
		D	T	7	P
			T	7 - 9	P
142	3	L	M W F	9	
143	3	L	M W F	2	
180	1	I	M W	4 - 530	
181	1	I	M W	12	
		I	T T F	12	
182	1	I	T T	4 - 530	SIMMONS
183	1	I	T T	2	STAIGER
184	1	I	M W	12	HARDESTY
		I	T	7 - 930P	HARDESTY
187	1	I	M W	4	SPOHN
188	1	I	MTWTF	3	MCGINNIS
189	1	I	M W	4 - 530	EVANS
		I	T T	4 - 530	BAKER
190	1	I	W	7 -10 P	HICKFANG
191	1	I		ARR	
192	1	I		ARR	
193	1	I		ARR	
194	1	I	T T	2	SUDDENDORF
199	1	I		ARR	



201.01	1-02	R		ARR	
201.02	1-02	R		ARR	
201.03	1-02	R		ARR	
201.04	1-02	R		ARR	
201.05	1-02	R		ARR	
201.06	1-02	R		ARR	
201.07	1-02	R		ARR	
201.08	1-02	R		ARR	
201.09	1-02	R		ARR	
223	3	L	MTWTF	9	GREEN
		B		61	HR ARR
		L	MTWTF	10	GREEN
		B		61	HR ARR
		L	MTWTF	11	HUFF
		B		61	HR ARR
		L	MTWTF	12	HUFF
		B		61	HR ARR
		L	MTWTF	2	LEVEY
		B		61	HR ARR
		L	MTWTF	3	LEVEY
		B		61	HR ARR
243	3	L	M W F	8	
		B	T T	8	
		L	M W F	2	
		B	T T	2	
261.02	2	LB	MT TF	9	MANLEY
261.07	2	LB	MT TF	8	SPOHN
262.01	2	LB	MT TF	9	RAST
		LB	MT TF	12	RAST
		LB	MT TF	4	RAST
262.02	2	LB	MT TF	2	MANLEY
262.04	2	L	T	9	WILSON
		L	T	3	WILSON
		B	M WT	9	
		B	M WT	10	
		B	M WT	3	
262.05	2	L	T	8	EVANS
		L	T	2	EVANS
		B	M TF	8	
		B	M TF	2	
		B	M TF	3	
263.01	2	LB	MT TF	10	RAST
		LB	MT TF	2	RAST
263.02	2	LB	MT TF	10	MANLEY
265	2	DB	T	7	- 930P SEXTON
270	3	DB	MTWTF	8	
		DB	MTWTF	1	
		DB	MTWTF	4	
271	2	D	MT TF	9	
		D	MT TF	11	RAMSEY
		D	MT TF	3	MANLEY
312	2	B	MT	7	-10 P HICKFANG
370	3	DB	MTWTF	11	
		DB	MTWTF	2	BONNEY
		DB	MTWTF	3	BONNEY
		DB	MTWTF	4	
401.01	1-02	R		ARR	
401.01	4	R		ARR	
401.02	1-02	R		ARR	
401.02	4	R		ARR	
401.03	1-02	R		ARR	
401.03	4	R		ARR	
401.04	1-02	R		ARR	
401.04	4	R		ARR	
501.05	1-02	R		ARR	

401.05	4	R		ARR	
401.06	1-02	R		ARR	
401.06	4	R		ARR	
401.07	1-02	R		ARR	
401.07	4	R		ARR	
401.08	1-02	R		ARR	
401.08	4	R		ARR	
401.09	1-02	R		ARR	
401.09	4	R		ARR	
423	3	L	M W F	9	HUFF
		L	M W F	11	GREEN
		L	M W F	2	KUEHEFUHS
		L	M W F	3	VEDDER
426	2	B	MTWT	10	VEDDER
		B	MTWT	11	VEDDER
		B	MTWT	12	LEVEY
		B	MTWT	2	
		B	MTWT	3	KUEHEFUHS
429	3	L	M W F	3	WALKER
501.01	1-02	R		ARR	
501.01	4	R		ARR	
501.02	1-02	R		ARR	
501.02	4	R		ARR	
501.03	1-02	R		ARR	
501.03	4	R		ARR	
501.04	1-02	R		ARR	
501.04	4	R		ARR	
501.05	1-02	R		ARR	
501.05	4	R		ARR	
501.06	1-02	R		ARR	
501.06	4	R		ARR	
501.07	1-02	R		ARR	
501.07	4	R		ARR	
501.08	1-02	R		ARR	
501.08	4	R		ARR	
501.09	1-02	R		ARR	
501.09	4	R		ARR	
524	3	L	M W F	11	MCCLURE
535	3	L	M W F	9	VEDDER
560	3	DB	M W F	10	SIMMONS
561	5	D	MTW F	9	BONNEY
		B	T	9 -11	BONNEY
562	3	DB	T T	10 -12	SIMMONS
564	3	DB	T T	2 - 4	RAMSEY
593	1-05	S		ARR	
594	1-05	S		ARR	
601.01	1-02	R		ARR	
601.01	4	R		ARR	
601.02	1-02	R		ARR	
601.02	4	R		ARR	
601.03	1-02	R		ARR	
601.03	4	R		ARR	
601.04	1-02	R		ARR	

**Music (Cont'd)**

601.04	4	R		ARR		
601.05	1-02	R		ARR		
601.05	4	R		ARR		
601.06	1-02	R		ARR		
601.06	4	R		ARR		
601.07	1-02	R		ARR		
601.07	4	R		ARR		
601.08	1-02	R		ARR		
601.08	4	R		ARR		
601.09	1-02	R		ARR		
601.09	4	R		ARR		
602	2	R		ARR		
635	3	L	T T	9	-1030	WALKER
645	3	L	M W F	3		
647	3	L	M W F	11		
651	3	L	M W F	9		
652	3	L	M W F	10		
653	3	L	M W F	11		HADDAD
66n	3	DB	M W F	11		MCGINNIS
68n	2	I	W	4	- 6	
683	3	L	T	7	- 930P	HELD
684	2	B		ARR		HELD
748.21	3	L		ARR		PLATT
79n	1-05	S		ARR		SCHNEIDER
791	1-05	S		ARR		SCHNEIDER
792	1-05	S		ARR		
801.01	2.04	R		ARR		
801.02	2.04	R		ARR		
801.03	2.04	R		ARR		
801.04	2.04	R		ARR		
801.05	2.04	R		ARR		
801.06	2.04	R		ARR		
801.07	2.04	R		ARR		
801.08	2.04	R		ARR		
801.09	2.04	R		ARR		
823	3	L	T T	1030-12		WALKER
828	5	L	MTWTF	11		PHELPS
829	3	L	T T	3	- 430	POLAND
831	3	L	M W F	4		WALKER
834	3	L	M W F	10		KUEHEFUHS
835	3	L		ARR		WALKER
837	3	S		ARR		WALKER
838	3	S		ARR		PHELPS
843	5	L	T T	9	-1030	
849	5	L	T T	1030-12		HOPPIN
851	5	L	M W F	2		
86n	3	D	T	7	- 930P	CADY

872	3	S	M W F	3		SCHNEIDER
877	3	S	M W F	2		SCHNEIDER
899	1-05	S		ARR		
993	1-05	S		ARR		
994.01	3-05	S		ARR		PHELPS
994.02	3-05	S		ARR		SCHNEIDER
994.03	3-05	S	T T	2	- 330	HOPPIN
999		S		ARR		

**National Security Policy Studies**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
693	3	C		ARR	
702	3-05	S		ARR	
WINTER QUARTER					
693	3	C		ARR	
785	3-05	S		ARR	
SPRING QUARTER					
693	3	C		ARR	
801	3-05	S		ARR	

**Naval Science**

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
141	3	L	M W F	9	GHERRITY
		L	M W F	11	GHERRITY
		L	M W F	3	GHERRITY
		B	T	3 - 5	GHERRITY
241	3	L	M W F	9	BRANNAN
		L	M W F	11	BRANNAN
		L	M W F	3	BRANNAN
		B	T	3 - 5	BRANNAN
341	3	L	M W F	9	PALMQUIST
		L	M W F	10	PALMQUIST
		L	M W F	11	PALMQUIST
		B	T	3 - 5	PALMQUIST
351	3	L	M W F	9	SMITH
		L	M W F	11	SMITH
		B	T	3 - 5	SMITH
361	3	L	M W F	9	FIKE
		L	M W F	11	FIKE
		B	T	3 - 5	FIKE
441	3	L	M W F	11	LANDECK
		L	M W F	3	LANDECK
		B	T	3 - 5	LANDECK
451	3	L	M W F	9	SMITH



461	3	L	M	W	F	11	SMITH SMITH
		B		T		3 - 5	
		L	M	W	F	9	
		L	M	W	F	11	
		B		T		3 - 5	FIKE FIKE FIKE

WINTER QUARTER

142	3	L	M	W	F	9	GHERRITY GHERRITY GHERRITY GHERRITY
		L	M	W	F	11	
		L	M	W	F	3	
		B		T		3 - 5	
342	3	L	M	W	F	9	PALMQUIST PALMQUIST PALMQUIST PALMQUIST
		L	M	W	F	10	
		L	M	W	F	11	
		B		T		3 - 5	
352	3	L	M	W	F	9	SMITH SMITH SMITH
		L	M	W	F	11	
		B		T		3 - 5	
362	3	L	M	W	F	9	FIKE FIKE FIKE
		L	M	W	F	11	
		B		T		3 - 5	
442	3	L	M	W	F	11	LANDECK LANDECK LANDECK
		L	M	W	F	3	
		B		T		3 - 5	
452	3	L	M	W	F	9	SMITH SMITH SMITH
		L	M	W	F	11	
		B		T		3 - 5	
462	3	L	M	W	F	9	FIKE FIKE FIKE
		L	M	W	F	11	
		B		T		3 - 5	

SPRING QUARTER

143	3	L	M	W	F	9	GHERRITY GHERRITY GHERRITY GHERRITY
		L	M	W	F	11	
		L	M	W	F	3	
		B		T		3 - 5	
243	3	L	M	W	F	9	BRANNAN BRANNAN BRANNAN BRANNAN
		L	M	W	F	11	
		L	M	W	F	3	
		B		T		3 - 5	
343	3	L	M	W	F	9	PALMQUIST PALMQUIST PALMQUIST PALMQUIST
		L	M	W	F	10	
		L	M	W	F	11	
		B		T		3 - 5	
353	3	L	M	W	F	9	SMITH SMITH SMITH
		L	M	W	F	11	
		B		T		3 - 5	
363	3	L	M	W	F	9	FIKE FIKE FIKE
		L	M	W	F	11	
		B		T		3 - 5	
443	3	L	M	W	F	11	LANDECK LANDECK LANDECK
		L	M	W	F	3	
		B		T		3 - 5	
453	3	L	M	W	F	9	SMITH SMITH SMITH
		L	M	W	F	11	
		B		T		3 - 5	

Nuclear Engineering

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

71n	3	L		ARR	
743	3	B		ARR	
763	3	L		ARR	

845	3-06	B		ARR	
881	1	L		ARR	
885	1-05	L		ARR	
999		I		ARR	

WINTER QUARTER

505	3	L	M	W	F	2	
744	3	B					ARR
77n	3	L					ARR
845	3-06	B					ARR
864	5	L					ARR
881	1	L					ARR
885	1-05	L					ARR
999		I					ARR

SPRING QUARTER

505	3	L	M	W	F	10	
71n	3	L	M	W	F	3	
743	3	B					ARR
744	3	B					ARR
82n	3	L	M	W	F	8	
845	3-06	B					ARR
856	4	L					ARR
881	1	L					ARR
885	1-05	L					ARR
999		I					ARR

Nurse Anesthesiology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

401	15		MTW	F	7	LANG
402	15		MTW	F	7	LANG
403	15		MTW	F	7	LANG
404	15		MTW	F	7	LANG
405	15		MTW	F	7	LANG
406	15		MTW	F	7	LANG

WINTER QUARTER

401	15		MTW	F	7	LANG
403	15		MTW	F	7	LANG
404	15		MTW	F	7	LANG
405	15		MTW	F	7	LANG
406	15		MTW	F	7	LANG

## Nurse Anesthesiology (Cont'd)

## SPRING QUARTER

401	15	MTW F	7	LANG
402	15	MTW F	7	LANG
403	15	MTW F	7	LANG
404	15	MTW F	7	LANG
405	15	MTW F	7	LANG
406	15	MTW F	7	LANG

## Nursing

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

301	6	L 2 K 2	M W F TWTF	11 7 -12	
35n	6	L 2 K 2	T T TWTF	2 - 330 8 -11	
41n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
411	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
42n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
421	8	L 2 K 2 K 2 K 2		ARR ARR ARR ARR	
53n	5	L 2		ARR	
531	8	L 2 K 2	ARR MTWTF	ARR ARR	
54n	8	L 2 L 2 K 2 K 2	MT F T MTW F T	11 1030-12 7 -11 7 -10	
55n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
551	10	L 2 K 2 K 2	MTWT MTWTF TWTF	2 7 -12 3 -11 P	
561	3	L 2	M W F	3	
685.01	4	K S		ARR 8 - 930	CHAMBERS
685.02	4	K S		ARR ARR	LEWIS
685.03	7	K S		ARR ARR	SUMP
685.04	7	K S	MTWTF F	7 -12 10 -12	PEASE
71n	3	D	T T	8 - 930	CHAMBERS
74n	3	D	T T	8 - 930	LEWIS
785	3	L	T T	3 - 430	SHIRK
793	1-05	C		ARR	
994	2-05	S	T	1 - 3	
999		I		ARR	

## WINTER QUARTER

31n	8	L 2 K 2	MT TF TWTF	2 7 -12	
311	8	L 2 K 2	MTWT TWTF	2 7 -12	
35n	6	L 2 K 2	W F TWTF	11 -1230 8 -11	
41n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
411	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
42n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
421	8	L 2 K 2 K 2 K 2		ARR ARR ARR ARR	
53n	5	L 2		ARR	
531	8	L 2 K 2	MTWTF	ARR ARR	
54n	8	L 2 L 2 K 2 K 2	MT F T MTW F T	11 1030-12 7 -11 7 -10	
55n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
551	10	L 2	MTWT	2	
551	15	K 2	MTWTF	7 -12	
551	10	K 2	TWTF	3 -11 P	
561	3	L 2	M W F	3	
685.A	4	K S K S		ARR 8 - 9 ARR 1 - 2	CHAMBERS CHAMBERS
685.B	4	K S		ARR ARR	LEWIS
71n	3	D	M W	8 - 930	CHAMBERS
711	3	D	T T	8 - 930	CHAMBERS
741	3	D	T T	8 - 930	LEWIS
75n	5	D D	M F	10 -12 61 HR ARR	SUMP
77n	5	D D	M F	10 -12 61 HR ARR	PEASE
785	3	L	T T	3 - 430	SHIRK
793	1-05	C		ARR	
994	1-05	S	T	1 - 3	
999		I		FS R	

## SPRING QUARTER

31n	8	L 2 K 2	MT TF MTWTF	3 7 -12	
311	8	L 2 K 2	MTWT MTWTF	3 7 -12	
35n	6	L 2 K 2	TF TWTF	3 - 430 8 -11	
41n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
411	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	
42n	8	L 2 K 2	T T MTWTF	2 - 4 7 -12	



421	8	L 2 K 2 K 2 K 2	ARR ARR ARR ARR	
53n	5	L 2	ARR	
531	8	L 2 K 2	ARR ARR	
54n	18	L 2 MT F 11 L 2 T 1030-12 K 2 MTW F 7 -11 K 2 T 7 -10		
55n	8	L 2 T T 2 - 4 K 2 MTWTF 7 -12		
551	10	L 2 MTWT 2 K 2 MTWTFS 7 -12 K 2 TWTF 3 -11 P		
561	3	L 2 M W F 3		
685.01	4	K S F 8 - 9	CHAMBERS	
685.02	7	K S MTWTF 7 -12 F 10 -12	PEASE	
711	3	D M W 8 - 930	CHAMBERS	
751	5	D M W 10 -12 D F 10	SUMP	
771	4	D MTWT 1 - 2	PEASE	
793	1-05	C	ARR	
994	2-05	S T 2 - 4		
999	1		ARR	

## Obstetrics and Gynecology

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

737	6+12	L D S	MTWTF 8 - 9 MTWTF 1 - 3 S 8 - 9	
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74n	6	I	ARR	
751	6	I	ARR	
793	6	I	ARR	
793	2-05	I	ARR	
799	18	I	ARR	
90n	2-05	C I M	3 - 5 ARR	
999	1		ARR	

### WINTER QUARTER

737	6+12	L D S	MTWTF 8 - 9 MTWTF 1 - 3 S 8 - 9	
-----	------	-------	---------------------------------------	--

745	6	I	ARR	
751	6	I	ARR	
793	6	I	ARR	
793	2-05	I	ARR	
799	18	I	ARR	

90n	2-05	C I M	3 - 5 ARR	
999	1		ARR	

### SPRING QUARTER

737	6+12	L D S	MTWTF 8 - 9 MTWTF 1 - 3 S 8 - 9	
74n	6	I	ARR	
751	6	I	ARR	
793	6	I	ARR	
793	2-05	I	ARR	
799	18	I	ARR	
90n	2-05	C I M	3 - 5 ARR	
999	1		ARR	

## Occupational Therapy

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

20n	1	D T	2	LOCHER
201	1	D 2 T T	1	LOCHER
204	1	B 2	ARR	LOCHER
301	2	D 2 T T	2	GRANT
405	5	D 2 M F 2 D 2 M F 4 B 2 M F 3 K 2 W 2 - 4		GRANT
406	2	D 2 T T	3	LOCHER
407	8	D 2 M W F 10 -12 T T 9 -12		ROSS
417	1	S 2 T	2	LOCHER
42n	6	K 2	ARR	ROSS

### WINTER QUARTER

20n	1	D T	9	GRANT
202	1	D 2 B 2 T	1 ARR	GRANT
204	1	B 2	ARR	GRANT
404	8	D 2 MT TF 4 BK2 T T 9 -12 BK2 W 1 - 4		LOCHER
415	1	S 2 W	11	GRANT
42n	6	K 2	ARR	ROSS

### SPRING QUARTER

203	1	D2 B2 T	1 ARR	ROSS
204	1	B2	ARR	LOCHER
403	8	D2 M F 10 D2 W 10 K2 T T 9 -12 D2 T T 4		GRANT

## Occupational Therapy (Cont'd)

416	1	S2	T	11	ROSS
420	6	K2		ARR	ROSS

## Ophthalmology

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

751	1	C		ARR	MAKLEY
793	6+12	W		ARR	MAKLEY
793	18	W		ARR	MAKLEY
799	18	KD		ARR	MAKLEY
850	3-05	S		ARR	MAKLEY
999		W		ARR	MAKLEY

## WINTER QUARTER

751	1	C		ARR	MAKLEY
793	6+12	W		ARR	MAKLEY
793	18	W		ARR	MAKLEY
799	18	KD		ARR	MAKLEY
850	3-05	S		ARR	MAKLEY
999		W		ARR	MAKLEY

## SPRING QUARTER

793	6+12	W		ARR	MAKLEY
793	18	W		ARR	MAKLEY
799	18	KD		ARR	MAKLEY
850	3-05	S		ARR	MAKLEY
999		W		ARR	MAKLEY

## Optometry

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

401	1	L	T	4	ESKRIDGE
433	4	L	M W F	3	WILD
		R	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	
441	4	L	M W F	10	HEBBARD
		B	M	2 - 5	
		B	W	2 - 5	
641	5	D	M W	1	HEBBARD
642	5	D	M W	1	HEBBARD

643	5	D	M W	1	HEBBARD
		K	MTWTF	8 -10	
		K	MTWTF	10 -12	

653	4	L	M W F	4	BAILEY
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	

702	4	L	M W F	2	ESKRIDGE
		B	T	1 - 3	
		B	T	3 - 5	
		B	T	1 - 3	
		B	T	3 - 5	

741	5	D	M F	9	WILD
		K	MTWTF	1 - 3	
		K	MTWTF	3 - 5	

742	5	D	M F	9	WILD
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743	5	D	M F	9	WILD
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745	3+05	K	T	8 -12	
		K	T	8 -12	
		K	M W	1 - 3	
		K	M W	3 - 5	

## WINTER QUARTER

431	4	L	M W F	11	WILD
		B	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	

442	4	L	M W F	10	HEBBARD
		B	M	2 - 5	
		B	W	2 - 5	

641	5	D	M W	5 - 6	HEBBARD
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642	5	D	M W	5 - 6	HEBBARD
-----	---	---	-----	-------	---------

643	5	D	M W	5 - 6	HEBBARD
		K	MTWTF	8 -10	
		K	MTWTF	10 -12	

652	4	L	M W F	4	FUGATE
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	

703	4	L	M W F	2	SCHOESSLER
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	

721	3	L	M W F	11	HEBBARD
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741	5	D	M F	10	WILD
-----	---	---	-----	----	------

742	5	D	M F	10	WILD
-----	---	---	-----	----	------

743	5	D	M F	10	WILD
		K	MTWTF	1 - 3	
		K	MTWTF	3 - 5	

745	3+05	K	T T	10 -12	
		K	T T	1 - 3	
		K	T T	3 - 5	

## SPRING QUARTER

432	4	L	M W F	11	WILD
		B	T	8 -10	
		B	T	10 -12	
		B	T	8 -10	
		B	T	10 -12	

443	4	L	M W F	10	HEBBARD
		B	M	2 - 5	
		B	W	2 - 5	

641	5	D	M W	2	HEBBARD
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642	5	D	M W	2	HEBBARD
-----	---	---	-----	---	---------

643	5	D	M W	2	HEBBARD
		K	MTWTF	8 -10	
		K	MTWTF	10 -12	



651	4	L	M W F	4	
		B	M	8	-10
		B	W	8	-10
		B	M	10	-12
66n	5	L	M W F	3	
		B	T T	2	- 5
701	4	L	M W F	9	
		B	T	8	-10
		B	T	10	-12
		B	T	8	-10
		B	T	10	-12
722	3	L	M W F	11	
741	5	D	M W	10	
742	5	D	M W	10	
743	5	D	M W	10	
		K	MTWTF	1	- 3
		K	MTWTF	3	- 5
745	3+05	K	T	8	-12
		K	T	8	-12
		K	T T	1	- 3
		K	T T	3	- 5

HILL

HEBBARD

WILD

WILD

WILD

## Otolaryngology

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

751	1	L		ARR	
793	2-06	B		ARR	
793	12+18	B		ARR	
794	6+12	K		ARR	
794	18	K		ARR	
799	18	W		ARR	
82n	6			ARR	
85n	1-04			ARR	
999				ARR	

### WINTER QUARTER

793	2-05	L		ARR	
794	18	K		ARR	
799	18	W		ARR	
751	1	L		ARR	
82n	6			ARR	
85n	1+02			ARR	
85n	4			ARR	
999				ARR	

### SPRING QUARTER

793	2-05	L		ARR	
794	18			ARR	
799	18	W		ARR	
85n	1+02			ARR	
85n	4			ARR	
999		I		ARR	

## Pathology

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

502	3	L	M W F	1	
505	3	L	M W F	11	
55n	5	L	T T S	8	
		B	T T S	9	-11
624	7	L		ARR	
		B		ARR	
792.05	3	L		ARR	
793.01	18	W		ARR	
793.02	12	W		ARR	
793.05	18	W		ARR	
793.07	24	W		ARR	
793.08	12	W		ARR	
793.09	24	W		ARR	
793.10	12	W		ARR	
793.12	12	W		ARR	
793.13	12	W		ARR	
793.14	24	W		ARR	
793.15	3-05			ARR	
798	18	K		ARR	
799	18	K		ARR	
85n	2	S	W	3	- 5
999				ARR	

### WINTER QUARTER

503	3	L	M W F	11	
506	2	L	T T	1	
603	6	L		ARR	
		B		ARR	
625	4	L		ARR	
		B		ARR	
792.07	3	L		ARR	
793.01	18	W		ARR	
793.02	12	W		ARR	
793.03	18	W		ARR	
793.04	18	W		ARR	
793.05	18	W		ARR	
793.06	6	W		ARR	
793.07	24	W		ARR	
793.08	12	W		ARR	
793.09	24	W		ARR	
793.10	12	W		ARR	
793.14	24	W		ARR	
793.15	3-05			ARR	
798	18	K		ARR	
799	18	K		ARR	
85n	2	S	W	3	- 5
999				ARR	

**Pathology (Cont'd)**

SPRING QUARTER

504	3	L	M W F	11	
507	2	L		11	
626	4	L B		ARR ARR	
655	5	L B B	T T S T S T S	8 9 10	-12
792.08	3	L		ARR	
793.01	18	W		ARR	
793.02	12	W		ARR	
793.03	18	W		ARR	
793.04	18	W		ARR	
793.06	6			ARR	
793.08	12	W		ARR	
793.10	12	W		ARR	
793.15	3-05			ARR	
798	18	K		ARR	
799	18	K		ARR	
85n	2	S	W	3	- 5
999	ARR			ARR	

**Pediatrics**

No.      Crd't. Sec.      Day      Time      Instructor

AUTUMN QUARTER

715	12.24	K		ARR	GRAHAM
793	6.12	K		ARR	GRAHAM
793	18	K		ARR	
794	6.12	K		ARR	GRAHAM
794	18	K		ARR	
798	18	K		ARR	GRAHAM
799	18	K		ARR	GRAHAM
83n	3			ARR	
85n	3-05			ARR	GRAHAM
999		L		ARR	GRAHAM

WINTER QUARTER

715	12.24	K		ARR	GRAHAM
793	6.12	K		ARR	GRAHAM
793	18	K		ARR	
794	6.12	K		ARR	GRAHAM
794	18	K		ARR	
798	18	K		ARR	GRAHAM
799	18	K		ARR	GRAHAM

83n	3		ARR	
85n	3-05	S	ARR	GRAHAM
999		L	ARR	GRAHAM

SPRING QUARTER

715	12.24	K	ARR	GRAHAM
793	6.12	K	ARR	GRAHAM
793	18	K	ARR	
794	6.12	K	ARR	GRAHAM
794	18	K	ARR	
798	18	K	ARR	GRAHAM
799	18	K	ARR	GRAHAM
85n	3-05	S	ARR	GRAHAM
999		L	ARR	GRAHAM

**Petroleum Engineering**

No.      Crd't. Sec.      Day      Time      Instructor

AUTUMN QUARTER

641	3	LB	ARR	SLIDER
642	3	LB	ARR	SLIDER
743.01	3-10	CB	ARR	SLIDER
743.02	3-10	CB	ARR	SLIDER
842	3-10	LB	ARR	SLIDER
999			ARR	SLIDER

WINTER QUARTER

442	3	L	ARR	SLIDER
542	3	LB	ARR	SLIDER
543	2	LB	ARR	SLIDER
743.01	3-10	CB	ARR	SLIDER
743.02	3-10	CB	ARR	SLIDER
842	3-10	LB	ARR	SLIDER
999		I	ARR	SLIDER

SPRING QUARTER

544	3	L	ARR	SLIDER
743.01	3-10	CB	ARR	SLIDER
796	2	S	ARR	SLIDER
842	3-10	LB	ARR	SLIDER
999			ARR	SLIDER



# Pharmacology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
60n	3	L	M W F	ARR	LEVEQUE
72n	3-15	D		ARR	MARKS
752	3	D		ARR	COURI
793	6+12	B		ARR	MARKS
793	18	B		ARR	MARKS
85n	2	S	F	2 - 4	MARKS
999		I		ARR	

WINTER QUARTER					
601	3	L		ARR	TRUITT
61n	3	B		ARR	PASSANANTI
		L		ARR	
70n	4	CL	MTWT	1	MARKS
721	3-15	D		ARR	LEVEQUE
793	6+12	B		ARR	MARKS
793	18	B		ARR	MARKS
85n	2	S	F	2 - 4	MARKS
999		B		ARR	MARKS

SPRING QUARTER					
701	5	L	MTWT	1	MARKS
723	3-15	D		ARR	GARDIER
751	3-15	D		ARR	BESCH
77n	3	D	MTWTF	ARR	ENGELMAN
85n	2	S	F	2 - 4	MARKS
793	6+12	B		ARR	MARKS
793	18	B		ARR	MARKS
999		B		ARR	MARKS

# Pharmacy

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
45n	5	L		ARR	BEAL
		B		ARR	
49n	1	L		ARR	PARKS
503	5	L		ARR	SOKOLOSKI
		B		ARR	
507	3	L		ARR	GUTH
		B		ARR	
511	2	L		ARR	BUERKI
515	3	L		ARR	LATIOLAIS
		B		ARR	
52n	3	L		ARR	KNAPP

534	4	L		ARR	LAPIDUS
57n	5	L		ARR	NELSON WOLF
606	5	L		ARR	
		B		ARR	
635	4	L		ARR	OLSON
		B		ARR	
675	3	L		ARR	TYE
677	3	L		ARR	BURKMAN
693	1-03			ARR	
695	2	S		ARR	
715	3	L		ARR	LATIOLAIS
789	3	L		ARR	DOSKOTCH
		B		ARR	
826	3	L		ARR	KNAPP
835	3	L		ARR	BOPE
85n	1	S		ARR	
851	3	L		ARR	DOSKOTCH
87n	3	L		ARR	NELSON
993	1-05	I		ARR	
999	1-15	I		ARR	

WINTER QUARTER					
401	5	L		ARR	MALSPEIS
		B		ARR	
43n	3	L		ARR	
		B		ARR	
451	4	L		ARR	DOSKOTCH
504	5	L		ARR	SOKOLOSKI
		B		ARR	
508	3	L		ARR	GUTH
		B		ARR	
515	3	L		ARR	LATIOLAIS
		B		ARR	
524	3	L		ARR	KNAPP
		B		ARR	
535	4	L		ARR	WITIAK
577	3	L		ARR	TYE
615	3	L		ARR	LATIOLAIS
		B		ARR	
636	3	L		ARR	OLSON
		B		ARR	
671	5	L		ARR	NELSON WOLF
		B		ARR	PATIL
68n	3	L		ARR	NELSON
693	1-03	I		ARR	
695	2	S		ARR	
754	2	L		ARR	BEAL
754	3	B		ARR	
805	3	L		ARR	GUTH
		B		ARR	
816	3	L		ARR	LATIOLAIS
836	3	L		ARR	BOPE
85n	1	S		ARR	
871	3	L		ARR	WOLF
		B		ARR	

Pharmacy    (Cont'd)

993	1-05	I	ARR
999	1-15	I	ARR

SPRING QUARTER

402	5	L B		ARR ARR		MALSPEIS
431	3	L		ARR		
435	5	L B		ARR ARR		BOPE
47n	4	L R R	MTW F F	1 1 1		WOLF
491	1	L		ARR		PARKS
505	5	L B		ARR ARR		
509	3	L B		ARR ARR		GUTH
515	3	L B		ARR ARR		LATIOLAIS
525	4	L B		ARR ARR		KNAPP
553	3	B		ARR		BEAL
579	3	L		ARR		TYE
609	3	L		ARR		GUTH
613	3	L		ARR		
625	3	L		ARR		SALISBURY
632	3	L		ARR		LAPIDUS
672	5	L B		ARR ARR		BURKMAN PATIL
69n	1	L		ARR		PARKS
693	1-03			ARR		
695	2	S		ARR		
737	5	L B		ARR ARR		OLSON
811	3	L		ARR		
817	3	L		ARR		LATIOLAIS
846	3	L		ARR		LAPIDUS
85n	1	S		ARR		
853	2-03	B		ARR		BEAL
993	1-05	I		ARR		
999	1-15	I		ARR		

Philosophy

No.    Crd't.    Sec.    Day    Time    Instructor

AUTUMN QUARTER

10n	3	L R R R R	M W T T T	11 8 10 11 12	HAUSMAN
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			R R R R L R R R R R	F F F F M T T T F F F	8 10 11 12 2 12 2 3 12 2 3	KIELKOPF
101	5	L R R R R R	M W F T T T T T	10 8 9 10 11 12		HINSHAW
13n	5	L R R R R	M W F T T T T	1 12 1 2 3		OLDENQUIST
15n	5	L R R R R R	M W F T T T L M W F T T T	9 8 9 11 12 2 1 2 3		OLSCAMP
21n	5	L R R R R	M W F T T T T T	1 12 1 2 3		TURNBULL
511	5	D D	MTWTF MTWTF	10 1		TURNBULL CHASE
611	5	D	MTWTF	9		SEVERENS
617	3		M W F	1		BROWN
65n	3	D	M W F	11		KIELKOPF
672	5	D	MTWTF	3		BROWN
712	5	D	MTWTF	10		FOX
763	3	D	M W F	2		NELSON
767	3	D	M W F	11		WEITZ
77n	3	D	M W F	3		ROSEN
771	3		M W F	1		SEVERENS
831	3	S		ARR		OLDENQUIST
885	3	S		ARR		NOCHBERG

WINTER QUARTER

10n	3	L R R R R R R R R R R R R	M W T T T T F F F F M T T T T T F F F	10 8 9 10 12 8 9 10 12 2 12 1 2 3 12 1 2 3		BROWN
101	5	L R R R R R R R	M W F T T T T T T T T	9 8 9 10 11 12		SEVERENS



13n	5	L	M W F	11	ROSEN
		R	T T	8	
		R	T T	9	
		R	T T	11	
		R	T T	12	
15n	5	L	M W F	9	KIELKOPF
		R	T T	8	
		R	T T	9	
		R	T T	11	
		R	T T	12	
		L	M W F	3	HAUSMAN
		R	T T	1	
		R	T T	2	
		R	T T	3	
21n	5	L	M W F	11	WEITZ
		R	T T	8	
		R	T T	10	
		R	T T	11	
		R	T T	12	
		R	T T	1	
24n	5	L	MTWTF	11	BROWN
512	5	D	MTWTF	10	HAUSMAN
		D	MTWTF	1	CHASE
611	5	D	MTWTF	10	HOCHBERG
651	3	D	M W F	11	KIELKOPF
675	5	D	MTWTF	10	FOX
676	3	D	M W F	9	HINSHAW
718	3	D	M W F	9	OLSCAMP
76n	3	D	M W F	1	HINSHAW
764	3	D	M W F	2	NELSON
77n	3	D	M W F	11	OLDENQUIST
771	3	D	M W F	3	WEITZ
811	3	S		ARR	TURNBULL
861	3	S		ARR	HOCHBERG
885	3	S		ARR	SEVERENS
SPRING QUARTER					
10n	3	L	M W	9	ROSEN
		R	T	8	
		R	T	9	
		R	T	12	
		R	F	8	
		R	F	9	
		R	F	12	
		L	M W	1	HAUSMAN
		R	T	12	
		R	T	1	
		R	T	3	
		R	F	12	
		R	F	1	
		R	F	3	
101	5	L	M W F	2	OLDENQUIST
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
13n	5	L	M W F	11	
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		R	T T	12	
15n	5	L	M W F	10	KIELKOPF
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		L	M W F	2	HOCHBERG
		R	T T	1	
		R	T T	2	
		R	T T	3	
21n	5	L	M W F	10	FOX
		R	T T	8	
		R	T T	9	

		R	T T	10	
		R	T T	11	
		R	T T	12	
23n	5	D	MTWTF	2	CHASE
24n	5	L	MTWTF	1	GARNER
513	5	D	MTWTF	10	OLSCAMP
		D	MTWTF	1	CHASE
615	3	D	M W F	1	ROSEN
631	5	D	MTWTF	9	OLSCAMP
653	3	D	M W F	2	
677	3	D	M W F	11	HOCHBERG
713	5	D	MTWTF	11	TURNBULL
719	3	D	M W F	3	SEVERENS
761	3	D	M W F	8	HINSHAW
77n	3	D	M W F	9	GARNER
		D	M W F	2	WEITZ
771	3	D	M W F	10	HAUSMAN
811	3	S		ARR	FOX
864	3	S		ARR	NELSON
885	3	S		ARR	WEITZ

Photography

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201	3	L	T T	8	BINAU
		B	T T	9 -11	BINAU
		L	T T	1	BINAU
		B	T T	2 - 4	BINAU
505	3	L	T T	10 -12	STAPLES
508	3	L	M F	3	STAPLES
		B	W	3 - 5	STAPLES
594	3	L	M W	8	BINAU DRAKE
		B	M W	9 -11	BINAU DRAKE
		L	M W	1	BINAU DRAKE
		B	M W	2 - 4	BINAU DRAKE
693	3-05	C	W	9 -11	
		C	F	1 - 3	

WINTER QUARTER

501	3	L	M W	8	BINAU
		B	M W	9 -11	BINAU
		L	T T	8	BINAU
		B	T T	9 -11	BINAU
506	3	L	T T	10 -12	WAGNER
507	3	L	M F	3	STAPLES
		B	W	3 - 5	STAPLES
594	3	L	M W	1	BINAU
		B	M W	2 - 4	BINAU
		L	T T	1	BINAU
		B	T T	2 - 4	BINAU
693	3-05	C	W	9 -11	
		C	F	1 - 3	

## Photography (Cont'd)

## SPRING QUARTER

201	3	L	M W	8	BINAU
		B	M W	9 -11	BINAU
		L	M W	1	BINAU
		B	M W	2 - 4	BINAU
		L	T T	8	BINAU
		B	T T	9 -11	BINAU
		L	T T	1	BINAU
		B	T T	2 - 4	BINAU
505	3	L	T T	10 -12	STAPLES
508	3	L	M W	3	STAPLES
		B	W	3 - 5	STAPLES
693	3-05	C	W	9 -11	
		C	F	1 - 3	

## Physical Education

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101.M	1	B		ARR	
104.W	1	B		ARR	
107.M	1	B		ARR	
107.W	1	B		ARR	
131.M	2	B	MTWTF	8 -10	
		B	MTWTF	2 - 4	
131.W	2	B	MTWTF	1 - 3	
		B	MTWTF	3 - 5	
214	5	LB	M W F	12 - 2	
221.M	2	L	T	7 - 9 P	
221.W	2	B		ARR	
222.M	2	L	M W	2	
		B		ARR	
231.M	2	B	MTWTF	8 -10	
231.W	2	B	MTWTF	1 - 3	
		B	MTWTF	3 - 5	
271	3	LB	T	7 - 9 P	
		F		ARR	
323	3	L	T	8	
		B	T	8 -10	
		D	T	9	
		L	T	8	
		B	T	8 -10	
		D	T	9	
		L	W	10	
		B	M	10 -12	
		D	W	11	
		L	M	10	
		B	W	10 -12	
		D	M	11	
		LB	M W	7 - 9 P	
42n.02M	3	LB	MTWTF	9	
42n.05N	3	LB	T	7 - 9 P	
42n.05W	3	LB	T	5 - 7	
42n.07M	3	LB	T T	2 - 4	
42n.10W	2	B	T	10 -12	
42n.10	2	L	M W	10	
42n.12M	2	LB	MTWT	3	
53n	2	L	T T	2	

541 3 B M W 11  
F T 10 -12  
B F 10 -12

589.M 2 B ARR

589.W 2 B ARR

621 5 L MTWTF 1

647.M 3 LB MTWTF 8

647.W 3 LB M W F 8 -10  
LB M W F 3 - 5

660 5 LB MTWTF 11

661 5 LB MTWTF 10

662.M 5 L M W F 9  
B S 9 -11

693 1-04 C ARR

841 3 L M W F 1

88n 3 L T T 4 HIXSON  
F ARR HIXSON

885 3 L M W F 9 MATHEWS

994.01 3 D W 7 -10 P MAND

994.04 3 D M W 4 - 530 MESS

999 C ARR

## WINTER QUARTER

102.M 1 B ARR

105.W 1 B ARR

108.M 1 B ARR

108.W 1 B ARR

132.M 2 B MTWTF 10 -12

132.W 2 B MTWTF 8 -10  
B MTWTF 12 - 2

214 5 L M W F 10 -12  
L M W F 1 - 3

222.M 2 L T T 11  
B ARR

222.W 2 B T 5 - 7 P  
B ARR

232.M 2 B MTWTF 8 -10

232.W 2 B MTWTF 8 -10  
B MTWTF 12 - 2

323 3 L F 8  
B M 8 -10  
D F 9  
L M 8  
B F 8 -10  
D M 9  
L T 8  
B T 8 -10  
D T 9  
L T 8  
B T 8 -10  
D T 9  
L M 7 - 9 P  
B W 7 - 9 P

42n.01M 3 L M W 1 - 3

42n.04M 3 L MTWTF 8

42n.09W 3 LB M W 4 - 6

42n.11M 3 L T T 1 - 3

542.M 4 L M W 1 - 3  
L T T 1 - 3  
B S 9 -12

542.W 4 L M W 10  
L F 9 -11  
B T T 8 -11



		B	T	T	9	-12	
		B	T	T	10	-1	
		B	M	W	11	-2	
		B	T	T	11	-2	
		B	M	W	12	-3	
		B	T	T	12	-3	
		B	M	W	1	-4	
		B	T	T	1	-4	
589.M	2	B			ARR		
589.W	2	B			ARR		
621	5	L	MTWTF		3		
640	3	L	M	W	F	10	BENNETT
642	5	L	MTWTF		9		HESS
		L	MTWTF		11		MORDY
650	3	L	T	T	10		MATHEWS
		B		S	9		
660	5	LB	MTW		11		
		LB	MTWTF		2		
693	1-04	C			ARR		
771	3	L	T	T	4	- 530	
830	3	L	M	W	4	- 530	
850	3	L	M	W	F	1	MATHEWS
994.02	3	D	T		1		ASHBROOK
994.06	3	D	T		2		ALLENBAUGH
994.07	3	D	M	W	F	2	ASHBROOK
995	2	S		T	7	- 9 P	
999	1-15	C			ARR		

SPRING QUARTER

103.M	1	B			ARR		
106.W	1	B			ARR		
109.M	1	B			ARR		
109.W	1	B			ARR		
133.M	2	B	MTWTF		8	-10	
		B	MTWTF		12	-2	
133.W	2	B	MTWTF		1	-3	
		B	MTWTF		3	-5	
214	5	LB	T	T	7	- 930P	
233.M	2	B	MTWTF		1	-3	
233.W	2	B	M	W	F	3	-5
		B	T	T	12	-3	
		B	M	W	F	3	-5
		B	T	T	9	-12	
270	2	L	T	T	11		
		B		S	10	-12	
271	3	LB	T	T	3	-5	
323	3	L		T	8		
		B		T	8	-10	
		O		T	9		
		L		T	8		
		B		T	8	-10	
		O		T	9		
		L		W	8		
		B	M		8	-10	
		D		W	9		
		L	M		8		
		B		W	8	-10	
		D	M		9		
		L	M		10		
		B		W	10	-12	
		D	M		11		
		L		W	10		
		B	M		10	-12	
		O		W	11		
		LB	T	T	7	- 9 P	
420.02M	3	LB	MTWTF		9		

420.02W	3	LB	T	T	4	-6	
420.05M	3	LB	T	T	2	-4	
420.06M	2	LB	T	T	1	-3	
420.08W	3	LB	T	T	4	-6	
420.09M	3	LB	MTWTF		10		
530	2	L	T	T	8		
543	3	LB	T	T	3	-5	
		LB		F	3		
589.M	2	B			ARR		
589.W	2	B			ARR		
621	5	L	MTWTF		11		
630	2	L	T		7	-9 P	
647.M	3	LB	MTWTF		1		
648	3	LB	T	TF	9	-11	
		LB	T	TF	3	-5	
660	5	LB	MTWTF		11		
661	5	LB	MTWTF		10		
662.M	5	L	M	W	F	8	
		B		S	9	-11	
662.W	5	L	MTW		1		
		R	M		630-730P		
		B		T	1	-3	
693	1-04	C			ARR		
770	3	LF		W	7	-9 P	MAND
		LF			61 HR	ARR	
831	3	L	M	W	4	-530	HESS
842	3	L	T	T	4	-530	MORDY
860	5	L	MTWTF		3		ASHBROOK
994.03	3	D	M	W	F	8	
994.05	3	D	M	W	F	2	CRAFTS
996	2	S		T	7	-9 P	MAND
999	1-15	C		T	3		BENNETT

Physical Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
715	1	D	M W F	1 - 5	JOHNSON
735	6.12	K		ARR	JOHNSON
735	18	K		ARR	
745	6.12	CB		ARR	JOHNSON
745	18	CB		ARR	
750	3	D	T T	3 - 5	NAGI
799	18	K		ARR	JOHNSON
993	3-05	BC		ARR	JOHNSON
999		B		ARR	JOHNSON

**Physical Medicine (Cont'd)****WINTER QUARTER**

715	1	D	MTW F	ARR	JOHNSON
735	6+12	K		ARR	JOHNSON
735	18	K		ARR	
745	6+12	CB		ARR	JOHNSON
745	18	CB		ARR	
770	3	DB	T T	10 -12	JOHNSON
799	18	K		ARR	JOHNSON
993	3-05	BC		ARR	NAGJ
999		B		ARR	JOHNSON

**SPRING QUARTER**

735	6+12	K		ARR	JOHNSON
735	18	K		ARR	
736	3	D	T T	3 - 5	MELVIN
745	6+12	CB		ARR	JOHNSON
745	18	CB		ARR	
799	18	K		ARR	JOHNSON
993	3-05	BC		ARR	JOHNSON
999		B		ARR	JOHNSON

**Physical Therapy**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

100	2	D	T T	9	WOODS
		D	T T	11	WOODS
301	2	L	M W	2	COPELAND
		B	F	2	COPELAND
302	2	L	T	2	WOODS
		B	M	9 -12	WOODS
		B	F	9 -12	WOODS
402	3	L	T T	1	PIERSON
		B	M W	8 -10	PIERSON
		B	T T	4 - 6	PIERSON
416	3	L	M W F	1	WAYLONIS
450	1-02	S		4	WOODS
486	2	S		ARR	WOODS
487	18	K		ARR	WOODS

**WINTER QUARTER**

303	3	L	M	1	COPELAND
		L	W	10	WOODS
		B	T T	1 - 3	COPELAND
		B	W F	1 - 3	COPELAND
		B	T T	10 -12	WOODS
310	4	L	T T	10	PIERSON
		B	M T	8 -10	PIERSON
		B	T F	8 -10	PIERSON

403	2	L	T T	9	JOHNSON
404	5	L	MTWTF	11	
415	3	D	M W F	10	BURNETT
451	1-02	S	W	4	WOODS
486	2	S		ARR	WOODS
487	18	K		ARR	WOODS

**SPRING QUARTER**

302	2	L	T	9	WOODS
		B	T	9 -12	WOODS
304	3	L	M W	10	BURNETT
		B	F	8 -10	BURNETT
		B	T	10 -12	BURNETT
400	1-03	L	M W F	8	WOODS
405	4	L	T T	3	BURNETT
		B	M W	1 - 3	BURNETT
		B	T T	1 - 3	BURNETT
407	4	L	M W	9	PIERSON
		B	M W F	10 -12	PIERSON
		B	M W F	3 - 5	PIERSON
450	1-02	S	T	8	WOODS
452	1-02	S	T	8	WOODS
485	3	L	F	1 - 3	COPELAND
486	2	S		ARR	WOODS
487	18	K		ARR	WOODS

**Physics**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

101	5	L	MTWT	11	HARRIS
		L	MTWT	2	HARRIS
		B		ARR	
111	5	L	M W	11	DICKEY
		R	T T	11	
		L	M W	12	DICKEY
		R	T T	12	
		L	M W	1	DICKEY
		R	T T	1	
		L	M W	2	DICKEY
		R	T T	2	
		B	M	8 -10	
		B	M	10 -12	
		B	M	12 - 2	
		B	M	2 - 4	
		B	M	4 - 6	
		B	M	6 - 8	P
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	T	4 - 6	
		B	W	8 -10	
		B	W	10 -12	
		B	W	12 - 2	
		B	W	2 - 4	
		B	W	4 - 6	
		B	W	6 - 8	P
		B	T	8 -10	
		B	T	10 -12	
		B	T	12 - 2	
		B	T	2 - 4	
		B	T	4 - 6	
		B	T	6 - 8	P
		B	F	8 -10	
		B	F	10 -12	



		B	F	12	- 2	
		B	F	2	- 4	
		B	F	4	- 6	
		B	S	8	-10	
112	5	L	M W	4		ERICKSON
		R	T T	4		
		B	M	8	-10	
		B	M	2	- 4	
		B	T	10	-12	
		B	T	2	- 4	
		B	W	12	- 2	
		B	F	12	- 2	
		B	F	4	- 6	
		B	F	6	- 8	
113	5	L	M W	8		
		R	T T	8		
		B	M	10	-12	
		B	M	12	- 2	
		B	T	12	- 2	
		B	T	2	- 4	
		B	T	4	- 6	
		B	F	8	-10	
231	5	L	1 M W T F	8		
		B	1 T	8	-10	
		L	T	11		
		R	M W F	11		HEER
		L	T	12		
		R	M W F	12		HEER
		L	T	1		HEER
		L	T	2		
		R	M W F	2		
		B	M	8	-10	
		B	M	10	-12	
		B	M	12	- 2	
		B	M	2	- 4	
		B	M	4	- 6	
		B	T	10	-12	
		B	T	2	- 4	
		B	W	8	-10	
		B	W	10	-12	
		B	W	12	- 2	
		B	W	2	- 4	
		B	W	4	- 6	
		B	T	10	-12	
		B	T	2	- 4	
		B	F	8	-10	
		B	F	10	-12	
		B	F	12	- 2	
		B	F	2	- 4	
		B	F	4	- 6	
232	5	L	T	4		HEER
		R	M W F	4		
		B	M	6	- 8	
		B	T	12	- 2	
		B	T	4	- 6	
		B	W	8	-10	
		B	T	2	- 4	
233	5	L	T	8		HEER
		R	M W F	8		
		B	T	8	-10	
		B	W	6	- 8	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	4	- 6	
		B	F	8	-10	
501	3	L	M W F	11		SHAFER
507	3	D	S	8	-12	RILEY
514	4	D	M W F	8		POOL
		B	T	8	-11	POOL
516	3	B	T T	1	- 4	SHAW
521	3	D	M W F	9		
		D	M W F	1		
535	3	D	M W F	8		SHAW
541	3	D	M W F	2		ERICKSON
551	3	D	M W F	12		NIELSEN
571	3	D	M W F	4		HAUSMAN
616	3	B	T T	1	- 4	SHAW
621	3	D	M W F	3		
624	3	D	M W F	4		SHAW
693	1-15	C			ARR	

717	3	B	T T	1	- 4	POOL
721	3	D	M W F	8		SHAFER
733	3	D	M W F	10		BROWN
743	3	D	M W F	2		
751	3	D	M W F	1		RAO
801	1	S		ARR		
816	3-05	C		ARR		
821	3	D	M W F	1		
827	3	D	M W F	3		
850	3	D	M W F	12		HEER
871	3	D	M W F	2		SEYLER
876	3	D	M W F	11		
880	3	D	M W F	4		
999	1			ARR		
WINTER QUARTER						
101	5	L	MTWT	2		HARRIS
		B		ARR		
102	5	L	MTWT	11		HARRIS
		B		ARR		
111	5	L	M W	8		DICKEY
		R	T T	8		
		L	M W	9		
		R	T T	9		
		B	M	10	-12	
		B	M	12	- 2	
		B	M	2	- 4	
		B	M	4	- 6	
		B	M	6	- 8	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	4	- 6	
		B	T	6	- 8	
		B	W	10	-12	
		B	W	12	- 2	
		B	W	2	- 4	
		B	W	4	- 6	
		B	W	6	- 8	
		B	T	12	- 2	
		B	T	2	- 4	
		B	T	4	- 6	
		B	T	6	- 8	
		B	F	8	-10	
		B	F	10	-12	
		B	F	12	- 2	
		B	F	2	- 4	
		B	F	4	- 6	
112	5	L	M W	11		ERICKSON
		R	T T	11		
		L	M W	12		
		R	T T	12		
		L	M W	1		
		R	T T	1		
		L	M W	2		
		R	T T	2		
		B	M	8	-10	
		B	M	10	-12	
		B	M	12	- 2	
		B	M	2	- 4	
		B	M	4	- 6	
		B	M	6	- 8	
		B	M	8	-10	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	2	- 4	
		B	T	4	- 6	
		B	T	6	- 8	
		B	F	10	-12	
		B	F	12	- 2	
		B	F	2	- 4	
		B	F	4	- 6	

## Physics (Cont'd)

113	5	L	M	W	4	DICKEY
		R	T	T	4	
		B	M		8	-10
		B	T		8	-10
		B	T		2	-4
		B	T	10	-12	
231	5	L	T		8	HEER
		R	M	W	8	
		B	M	F	10	-12
		B	M		4	-6
		B	T		8	-10
		B	T		10	-12
		B	T		12	-2
		B	T		2	-4
		B	W		12	-2
		B	W		2	-4
		B	W		4	-6
		B	T		4	-6
232	5	L	T		11	HEER
		R	M	W	11	
		L	T		12	
		R	M	W	12	
		L	T		1	
		R	M	W	1	
		L	T		2	
		R	M	W	2	
		B	M		8	-10
		B	M		10	-12
		B	M		12	-2
		B	M		4	-6
		B	T		2	-4
		B	W		8	-10
		B	W		2	-4
		B	W		4	-6
		B	T		8	-10
		B	T		10	-12
		B	T		12	-2
		B	T		2	-4
		B	F		8	-10
		B	F		10	-12
		B	F		2	-4
		B	F		4	-6
		D 1	M	W	8	HEER
		B 1	T		8	-10
233	5	L	T		4	HEER
		R	M	W	4	
		B	M	F	12	-2
		B	M		2	-4
		B	T		4	-6
		B	T		8	-10
		B	T		2	-4
435	3	D	M	W	4	N MILLER
437	2	B	W		8	DICKEY
		B	T		1	-5
		B	T		1	-5
472	5	D	M	T	9	
		D	M	T	3	
503	3	D	M	W	4	J SHAW
508	3	D	S		8	-12
516	3	B	T	T	1	-4
521	3	D	M	W	8	SHAFER
531	3	D	M	W	11	DICKEY
551	3	D	M	W	12	H NIELSEN
571	3	D	M	W	4	HAUSMAN
616	3	B	T	T	1	-4
636	3	D	M	W	1	BELL
661	3	D	M	W	8	HEER
693	1-15	C			ARR	
718	3	B	T	T	1	-4
722	3	L	M	W	8	SHAFER
727	3	D	M	W	3	BELL
734	3	L	M	W	10	BROWN

744	3	L	M	W	F	2	EDWARDS
753	3	L	M	W	F	1	JOSSEM
771	3	L	M	W	F	4	JASTRAM
801	1	S				ARR	
816	3-05	C				ARR	
828	3	L	M	W	F	3	MULLIGAN
834	3	L	M	W	F	10	PREBUS
847	3	L	M	W	F	2	MILLS
863	3	L	M	W	F	9	KORRINGA
872	3	L	M	W	F	11	SEYLER
877	3	L	M	W	F	4	ROMANOWSKI
881	3	L	M	W	F	1	H NIELSEN
999		I	M	W	F	ARR	

## SPRING QUARTER

101	5	L	M	T	W	T	2	HARRIS
		B					ARR	
102	5	L	M	T	W	T	11	HARRIS
		B					ARR	
111	5	L	M	W			4	DICKEY
		R	T	T			4	
		B	M				8	-10
		B	M				10	-12
		B	M				12	-2
		B	M				2	-4
		B	M				4	-6
		B	M				6	-8
		B	T				8	-10
		B	T				10	-12
		B	T				12	-2
		B	T				2	-4
		B	T				4	-6
		B	T				6	-8
		B	W				8	-10
		B	W				10	-12
		B	W				2	-4
		B	W				4	-6
		B	W				6	-8
		B	T				8	-10
		B	T				10	-12
		B	T				12	-2
		B	T				2	-4
		B	T				4	-6
		B	T				6	-8
		B	F				8	-10
		B	F				10	-12
		B	F				12	-2
		B	F				2	-4
		B	F				4	-6
		B	F				6	-8
112	5	L	M	W			8	ERICKSON
		R	T	T			8	
		L	M	W			9	
		R	T	T			9	
		B	M				10	-12
		B	M				12	-2
		B	M				2	-4
		B	M				4	-6
		B	M				6	-8
		B	T				10	-12
		B	T				12	-2
		B	T				2	-4
		B	T				4	-6
		B	T				6	-8
		B	W				10	-12
		B	W				12	-2
		B	W				2	-4
		B	W				4	-6
		B	W				6	-8
		B	T				10	-12
		B	T				12	-2
		B	T				2	-4
		B	T				4	-6
		B	T				6	-8
		B	F				10	-12
		B	F				12	-2
		B	F				2	-4
		B	F				4	-6
		B	F				6	-8



113	5	L	M	W	11	DICKEY
		R	T	T	11	
		L	M	W	1	
		R	T	T	1	
		B	M		8 -10	
		B	M		10 -12	
		B	M		12 - 2	
		B	M		2 - 4	
		B	M		4 - 6	
		B	M		6 - 8	
		B	T		8 -10	
		B	T		10 -12	
		B	T		12 - 2	
		B	T		2 - 4	
		B	T		4 - 6	
		B	T		6 - 8	
		B	W		8 -10	
		B	W		10 -12	
		B	W		12 - 2	
		B	W		2 - 4	
		B	W		4 - 6	
		B	W		6 - 8	
		B	T		8 -10	
		B	T		10 -12	
		B	T		12 - 2	
		B	T		2 - 4	
		B	T		4 - 6	
		B	T		6 - 8	
		B	F		8 -10	
		B	F		10 -12	
		B	F		12 - 2	
		B	F		2 - 4	
		B	F		4 - 6	
12n	5	L	M	W	3 - 5	J SHAW
		B	T		3 - 5	
231	5	L	T		4	HEER
		R	M	F	4	
		B	W		8 -10	
		B	W		10 -12	
		B	T		8 -10	
		B	T		10 -12	
		B	T		2 - 4	
		B	F		8 -10	
		B	F		10 -12	
		B	F		12 - 2	
		B	F		2 - 4	
232	5	L	T		9	HEER
		B	M	F	9	
		B	M		12 - 2	
		B	M		2 - 4	
		B	M		4 - 6	
		B	T		8 -10	
		B	T		10 -12	
		B	T		12 - 2	
		B	T		2 - 4	
		B	T		4 - 6	
		B	W		12 - 2	
		B	W		2 - 4	
		B	W		4 - 6	
		B	T		12 - 2	
		B	F		4 - 6	
233	5	L	T		11	
		R	M	F	11	
		L	T		1	
		R	M	F	1	
		L	T		2	
		R	M	F	2	
		B	M		8 -10	
		B	M		10 -12	
		B	M		12 - 2	
		B	M		2 - 4	
		B	M		4 - 6	
		B	T		10 -12	
		B	T		12 - 2	
		B	T		2 - 4	
		B	T		4 - 6	
		B	W		8 -10	
		B	W		10 -12	
		B	T		8 -10	
		B	T		10 -12	
		B	T		12 - 2	
		B	T		2 - 4	
		B	F		8 -10	
		B	F		10 -12	
		B	F		12 - 2	
		B	F		2 - 4	
		L 1	M	W	8	HEER
		B 1	T		8 -10	
436	3	D	M	W	3	MILLER
438	2	B	M		8 -12	DICKEY

		B	W	8 -12	
		B	T	8 -12	DICKEY
472	5	D	MTWTF	3	SEYLER
506	5	D	MTWTF	1	RILEY
509	3	D		S 8 -12	RILEY
516	3	B	T T	1 - 4	SHAW
521	3	D	M W F	12	SHAFFER
531	3	D	M W F	8	DICKEY
541	3	D	M W F	2	ERICKSON
551	3	D	M W F	8	NIELSEN
		D	M W F	12	
		D	M W F	4	
571	3	D	M W F	11	HAUSMAN
616	3	B	T T	1 - 4	SHAW
632	3	D	M W F	12	DICKEY
661	3'	D	M W F	8	HEER
693	1-15	C		ARR	
717	3	B	T T	1 - 4	POOL
723	3	L	M W F	8	SHAFFER
728	3	L	M W F	3	BELL
735	3	L	M W F	10	BROWN
742	3	L	M W F	2	MATE
757	3	L	M W F	1	RAO
761	3	L	M W F	4	EDWARDS
773	3	D	T T	7 - 830P	POOL
775	3	L	M W F	9	NIELSEN
801	1	S		ARR	
816	3-05	C		ARR	
822	3	L	M W F	11	MILLS
829	3	L	M W F	3	MULLIGAN
835	3	L	M W F	10	PREBUS
848	3	L	M W F	2	MILLS
864	3	L	M W F	12	KORRINGA
875	3	L	M W F	1	SEYLER
882	3	L	M W F	4	
999		I		ARR	

## Physiological Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
311.01	5	L	W F	1 - 3	DEVOR WIKOFF
311.02	4	B	M	12 - 3	DEVOR WIKOFF
545	2	L	T	11	RICHARDSON
		L	T	11	
601	8	L	MTWTF	1	NUENKE
		M		2 - 5	
		B	T T	2 - 5	NUENKE
		C	W	2 - 3	
		B	W FS	2 - 5	NUENKE
		C	T	2 - 3	

Physiological Chemistry    (Cont'd)

611	5	L B B	M W F T T W F	8 2 - 5 9 -12	SPRECHER
793	2-15	I		ARR	CORNWELL
793	18	I		ARR	
821	3	L		ARR	ALBEN
835	3	B		ARR	
85n	1	S		ARR	CORNWELL
855	2	S		ARR	
999		I		ARR	
WINTER QUARTER					
312.01	5	L	W F	1 - 3	DEVOR WIKOFF
312.04	1	B	M	12 - 3	DEVOR WIKOFF
602	4	L B B	W T ARR 2 - 5	1 ARR 2 - 5	NUENKE
612	5	L B B	M W F T T W F	8 2 - 5 9 -12	MEROLA
706	6	D		ARR	KRUGER
734	5	R B	T T	11 ARR	DEVOR DEVOR
793	2-15	I		ARR	CORNWELL
793	18	I		ARR	
822	3	L		ARR	BRIERLEY
83n	3	LB		ARR	ALBEN
85n	1	S		ARR	CORNWELL
855	2	S		ARR	
999		I		ARR	
SPRING QUARTER					
54n	6	L L B B B	F M W F T T W F	10 11 1 - 4 8 -11 1 - 4	DEVOR DEVOR DEVOR
613	5	L B B	M W F T T W F	8 2 - 5 9 -12	RIESKE RIESKE RIESKE
706	6	D		ARR	KRUGER
725	1	L	T	11	WIKOFF
793	2-15	I		ARR	CORNWELL
793	18	I		ARR	
823	3	L		ARR	BRIERLEY
85n	1	S		ARR	CORNWELL
855	2	S		ARR	
898	1	S		ARR	
999		I		ARR	

Physiological Optics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
512	5	L B B B	M W T F M W W	11 1 - 3 3 - 5 1 - 3 3 - 5	ESKRIDGE
614	3	L	M W F	9	HILL
693	1-15	C		ARR	
73n	5	L B B B B	W W F T T T T	9 10 8 -10 10 -12 8 -10 10 -12	FRY
795	1-03	S	T	9 -12	
801	5	L B	MTW TF	1 12 - 2	FRY
81n	5	L L	M W MTW	3 4	FRY FRY
999		I			
WINTER QUARTER					
52n	4	L B B B B	M W F T T T F	9 2 - 4 1 - 3 3 - 5 2 - 4	
613	5	L B B B B	MTW F T T T T	1 8 -10 10 -12 8 -10 10 -12	KING
693	1-15	C		ARR	
716	5	L B B B B	M W F T T T T	3 8 -10 10 -12 8 -10 10 -12	FRY
731	5	L L	M W	8 -10 8	BAILEY
795	1-03	S	T	1 - 4	
802	5	L B	MTW F	1 12 - 4	FRY
811	5	L	MTWTF	4	FRY
812	5	L B	MT TF W	10 10 -12	HILL
999		I		ARR	
SPRING QUARTER					
511	5	L L B B B B	M W F T M M W W	2 11 8 -10 10 -12 8 -10 10 -12	ESKRIDGE
693	1-15	C		ARR	
715	5	L L B B B B	M W F T T T T T	8 1 8 -10 10 -12 8 -10 10 -12	ESKRIDGE
732	5	L	M W F	9	BAILEY



		B	T	8	- 1	
		B	T	8	- 1	
795	1-03	S		T	9	-12
803	5	L	MTW	2		FRY
		B	TF	2	- 4	
999	1		ARR			

Physiology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

11n	5	L	MTWT	11		PAUL
		D	F	10	-12	
311	5	L	MT TF	3		ANGERER
		B	M	9	-11	
		B	W	9	-11	
		B	T	9	-11	
516	5	L	MT TF	8		WEISS
		B	T	9	-12	
604	6	L	WTF	1	- 2	LIPSKY
		L	T	1	- 3	
		B	T	2	- 5	
623	5	L	MT TF	9		LESSLER
		B	W	9	-12	
		B	W	1	- 4	
646	5	L	MTWTF	5		MYERS
648	3	L	M	1		STOW
		B	M F	2	- 5	
793	3-18	I		ARR		
807	3	S		ARR		
84n	3	L	M W	10	-12	BILLINGS
85n	2	S		ARR		
999	1		ARR			

WINTER QUARTER

312	5	L	MT TF	3		ANGERER
		B	M	9	-11	
		B	T	9	-11	
		B	W	9	-11	
517	5	L	MT TF	8		WEISS
		B	T	9	-12	
605	6	L	T	1	- 3	LIPSKY
		L	W F	8		
		L	T	1	- 2	
		B	T	2	- 5	
635	6	D	MT TF	ARR		LITTLE
		B	T F	2	- 5	
793	3-18	I		ARR		
807	3	S		ARR		
825	6	D	MT TF	1		LITTLE
		B	T F	2	- 5	
84n	3	L	M W	10	-12	BILLINGS
85n	2	S		ARR		
999		W		ARR		

SPRING QUARTER

11n	5	L	MTWT	11		PAUL
		D	F	10	-12	
311	5	L	MT TF	8		GRUBBS
		B	T	9	-11	
63n	5	L	MTW F	8		NISHIKAWARA
		B	T	9	-12	
636	9	D	MT TF	ARR		LITTLE
793	3-18	I		ARR		
807	3	S		ARR		
826	9	D	MT TF	ARR		LITTLE
84n	3	L	M W	10	-12	BILLINGS
85n	2	S		ARR		
999		W		ARR		

Plant Pathology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

47n	5	L	M W F	10		ELLETT
		B	T T	10	-12	ELLETT
		L	M W F	1		SMITH
		B	T T	1	- 3	SMITH
874	5	L	M W	10		SMITH
		B	TF	10	-12	SMITH
879	2	S	T	4	- 6	ALLISON

WINTER QUARTER

471	3	DBF	T T	10	-12	ELLETT
67n	5	L	M W F	8		TROXEL
		B	T T	8	-10	TROXEL
671	3	BD	M W F	1	- 3	ELLETT
871	3	D	M W F	8	-10	ALLISON
879	2	S	T	4	- 6	ALLISON

SPRING QUARTER

47n	5	L	M W F	10		ELLETT
		B	T T	10	-12	ELLETT
		L	M W F	1		SMITH
		B	T T	1	- 3	SMITH
872	3	L	M W	8		TROXEL
		B	F	8	-10	TROXEL
879	2	S	T	4	- 6	ALLISON

## Polish

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
604	3	R	M W F	9	KRZYZANOWSKI
620	5	L	M W F	2	KRZYZANOWSKI
WINTER QUARTER					
605	3	R	M W F	9	KRZYZANOWSKI
621	5	L	M W F	2	KRZYZANOWSKI
SPRING QUARTER					
606	3	R	M W F	9	KRZYZANOWSKI

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
200	5	L	MTWTF	4	
		L	T T	7	
				- 930P	
		L	MTWTF	11	
205	5	L	MTWTF	9	
		L	MTWTF	11	
		L	MTWTF	1	
225	5	L	MTWTF	9	
		L	MTWTF	2	
		L	MTWTF	3	
245	5	L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	3	
265	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
275	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	2	
378	5	L	MTWTF	1	ROBINSON
505	5	L	MTWTF	2	
545	5	L	MTWTF	1	
562	5	L	MTWTF	1	
565	5	L	MTWTF	9	SPITZ
575	5	L	MTWTF	9	
594	5	L	MTWTF	3	
601	5	L	MTWTF	10	HALE

615	5	L	MTWTF	9	AUMANN
626	5	L	MTWTF	2	CHRISTOPH
627	5	L	MTWTF	11	
630	5	L	MTWTF	1	NEMZER
656	5	L	MTWTF	2	
658	5	L	MTWTF	10	RICHARDSON
668	5	L	MTWTF	11	AUMANN
670	5	L	MTWTF	11	KETTLER
676	5	L	MTWTF	1	ORBELL
693	1-05	S		ARR	
745	5	L	M W F	10	BURGESS
765	5	L		ARR	SPITZ
775	5	L	M W F	2	ORBELL
783	3-05	S		ARR	
790	5	L	T	3 - 5	HERSON
		L	T	4 - 5	
794	3-05	S	T	3 - 5	
801	3-05	S	T	3 - 5	HALE
826	3-05	S	W	3 - 5	CHRISTOPH
866	3-05	S		ARR	
876	3-05	S	M	3 - 5	ROBINSON
899	1-05	S		ARR	
999		I		ARR	

## WINTER QUARTER

100	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
200	5	L	MTWTF	4	
		L	T T	7	
				- 930P	
		L	MTWTF	11	
205	5	L	MTWTF	9	
		L	MTWTF	11	
		L	MTWTF	1	
225	5	L	MTWTF	9	
		L	MTWTF	2	
		L	MTWTF	3	
245	5	L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	3	
265	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
275	5	L	MTWTF	10	
		L	MTWTF	2	
		L	MTWTF	4	
506	3	L	W	7 - 930P	
545	5	L	MTWTF	1	
573	3	L	M	7 - 930P	SPITZ
575	5	L	MTWTF	10	ORBELL
594	5	L	MTWTF	9	SPITZ
610	5	L	MTWTF	11	



616	5	L	MTWTF	9	AUMANN
635	5	L	MTWTF	10	RICHARDSON
636	5	L	MTWTF	2	LIDDLE
651	5	L	MTWTF	1	
655	5	L	MTWTF	1	NEMZER
671	5	L	MTWTF	11	KETTLER
676	5	L	MTWTF	9	
693	1-05	S		ARR	
700	5	L	M W F	11	
725	5	L	M W F	2	CHRISTOPH
731	3	L	M W F	11	NEMZER
779	5	L	MTWTF	1	HALE
783	3-05	S		ARR	
794	3-05	S	T	3	KETTLER
818	3-05	S		ARR	AUMANN
826	3-05	S	T	3 - 5	
846	3-05	S	F	3 - 5	
866	3-05	S	W	3 - 5	CHAMPLIN
876	3-05	S	T	3 - 5	
899	1-05	S		ARR	
999	1			ARR	

SPRING QUARTER

10n	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	T T	7	- 930P
20n	5	L	MTWTF	11	
205	5	L	MTWTF	9	
		L	MTWTF	11	
		L	MTWTF	1	
225	5	L	MTWTF	9	
		L	MTWTF	2	
		L	MTWTF	3	
245	5	L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	3	
265	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	T T	7	- 930P
275	5	L	MTWTF	10	
		L	MTWTF	2	
		L	MTWTF	4	
54n	5	L	MTWTF	11	
545	5	L	MTWTF	1	
559	5	L	MTWTF	1	
565	5	L	MTWTF	9	CHAMPLIN
575	5	L	MTWTF	11	
594	5	L	MTWTF	11	
611	5	L	MTWTF	10	
627	5	L	MTWTF	9	

63n	5	L	MTWTF	1	STEWART
65n	5	L	MTWTF	11	AXLINE
656	5	L	MTWTF	2	BURGESS
672	5	L	MTWTF	9	SPIZ
676	5	L	MTWTF	10	
677	3	L	M W F	9	
693	1-05	S		ARR	
725	5	L	M W F	2	
745	5	L	M W F	2	RAINEY
778	3	L	M W F	1	CHRISTOPH
783	3-05	S		ARR	
79n	5	L	T	3 - 5	HERSON
		L	T	4 - 5	
794	3-05	S	M	3 - 5	LIDDLE
		S	T	3 - 5	CHRISTOPH
807	3-05	S		ARR	
813	3-05	S		ARR	
826	3-05	S	T	3 - 5	
846	3-05	S	F	3 - 5	
866	3-05	S	W	3 - 5	KETTLER
899	1-05	S		ARR	
999	1			ARR	

Portuguese

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	R	MTWTF	1	ARAUJO
104	5	R	MTWTF	11	ARAUJO
693	1-05	C		ARR	
794	1-05	C		ARR	

WINTER QUARTER

102	5	R	MTWTF	1	ARAUJO
693	1-05	C		ARR	
794	1-05	C		ARR	

SPRING QUARTER

103	5	R	MTWTF	1	ARAUJO
693	1-05	C		ARR	

## Poultry Science

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

20n	5	L B F	MTW F T	8 8 -10 ARR	MARSH
589	5	W		ARR	
593	2	K		ARR	
593	3:05	K		ARR	
695	2	S	M	4	COOK
893	2	K		ARR	
893	3:05	K		ARR	
999		I		ARR	

### WINTER QUARTER

20n	5	L B F	MTW F T	1 1 - 3 ARR	MOUNTNEY
589	5	W		ARR	
593	2	K		ARR	
593	3:05	K		ARR	
64n	5	L B	M W F T T	8 8 -10	MARSH
695	2	S	M	4	COOK
893	2	K		ARR	
893	3:05	K		FS R	
999		I		ARR	

### SPRING QUARTER

20n	5	L B F	M W T F T	8 8 -10 ARR	MARSH
31n	3	L	M W F	10	JAAP
589	5	W		ARR	
593	2	K		ARR	
593	3:05	K		ARR	
65n	3	L B	MTW F T	9 8 -10	MOUNTNEY
695	2	S	M	4	COOK
893	2	K		ARR	
893	3:05	K		ARR	
898	1	S		ARR	
999		I		ARR	

## Preventive Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

585	3	L	M	4 - 6	KELLER
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735	2	D	ARR	KELLER
753	6	D	ARR	GOODLOE
793.01	2-05	D	ARR	ELLINGSON
793.01	6:12	BD	ARR	ELLINGSON
793.01	18	BD	ARR	ELLINGSON
793.02	2-05	D	ARR	
793.02	6:12	BD	ARR	
793.02	18	BD	ARR	
793.03	2-05	D	ARR	
793.03	6:12	BD	ARR	
793.03	18	BD	ARR	
793.04	2-05	D	ARR	
793.04	6:12	BD	ARR	
793.04	18	BD	ARR	
793.05	2-05	D	ARR	
793.05	6:12	BD	ARR	
793.05	18	BD	ARR	
793.06	2-05	D	ARR	
793.06	6:12	BD	ARR	
793.06	18	BD	ARR	
793.07	2-05	D	ARR	
793.07	6:12	BD	ARR	
793.07	18	BD	ARR	
799	18	W	ARR	ELLINGSON
811	2	D	ARR	SHILLITO
82n	3	D	ARR	SHILLITO
85n.01	1:03	S	ARR	ELLINGSON
85n.02	1:03	S	ARR	LEWIS
86n	3	D	ARR	KELLER
899	1-05	S	ARR	
999		W	ARR	ELLINGSON

### WINTER QUARTER

618	3	L	ARR	KELLER
735	2	D	ARR	KELLER
753	6	D	ARR	GOODLOE
793.01	2-05	D	ARR	ELLINGSON
793.01	6:12	BD	ARR	ELLINGSON
793.01	18	BD	ARR	ELLINGSON
793.02	2-05	D	ARR	
793.02	6:12	BD	ARR	
793.02	18	BD	ARR	
793.03	2-05	D	ARR	
793.03	6:12	BD	ARR	
793.03	18	BD	ARR	
793.04	2-05	D	ARR	
793.04	6:12	BD	ARR	
793.04	18	BD	ARR	
793.05	2-05	D	ARR	



793.05	6.12	BD	ARR	
793.05	18	BD	ARR	
793.06	2-05	D	ARR	
793.06	6.12	BD	ARR	
793.06	18	BD	ARR	
793.07	2-05	D	ARR	
793.07	6.12	BD	ARR	
793.07	18	BD	ARR	
799	18	W	ARR	ELLINGSON
821	3	D	ARR	SHILLITO
830	3	D	ARR	MCCONKEY
850.01	1-03	S	ARR	ELLINGSON
850.02	1-03	S	ARR	LEWIS
856	3	D	ARR	LEWIS
858	3	K	ARR	SCOBIE
861	3	D	ARR	ROBERTS
899	1-05	S	ARR	
999		W	ARR	ELLINGSON

SPRING QUARTER

624	2	D	ARR	KELLER
753	6	D	ARR	GOODLOE
793.01	2-05	D	ARR	ELLINGSON
793.01	6.12	BD	ARR	ELLINGSON
793.01	18	BD	ARR	ELLINGSON
793.02	2-05	D	ARR	
793.02	6.12	BD	ARR	
793.02	18	BD	ARR	
793.03	2-05	D	ARR	
793.03	6.12	BD	ARR	
793.03	18	BD	ARR	
793.04	2-05	D	ARR	
793.04	6.12	BD	ARR	
793.04	18	BD	ARR	
793.05	2-05	D	ARR	
793.05	6.12	BD	ARR	
793.05	18	BD	ARR	
793.06	2-05	D	ARR	
793.06	6.12	BD	ARR	
793.06	18	BD	ARR	
793.07	2-05	D	ARR	
793.07	6.12	BD	ARR	
793.07	18	BD	ARR	
799	18	W	ARR	ELLINGSON
812	2	D	ARR	KELLER
822	3	D	ARR	SHILLITO
850.01	1-03	S	ARR	ELLINGSON
850.02	1-03	S	ARR	LEWIS
858	3	K	ARR	SCOBIE

862	3	D	ARR	ROBERTS
898	1	S	ARR	
899	1-05	S	ARR	
999		W	ARR	ELLINGSON

Psychiatry

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

708	1	L	T	2	
712	2	D	T	2	
714	1	L	T	3	
718	1	L	T	2	
721	1	L	T	2	
737	6.12	K	MTWTF	ARR	
740	1	D	T	3	
745	1	L	T	4	
751	1	D	T	2	
793.A	1-02	I		ARR	
793.A	6.12	I		ARR	
793.A	18	I		ARR	
793.B	1-02	I		ARR	
793.B	6.12	I		ARR	
793.B	18	I		ARR	
793.C	1-02	I		ARR	
793.C	6.12	I		ARR	
793.C	18	I		ARR	
793.D	1-02	I		ARR	
793.D	6.12	I		ARR	
793.D	18	I		ARR	
793.E	1-02	I		ARR	
793.E	6.12	I		ARR	
793.E	18	I		ARR	
793.F	1-02	I		ARR	
793.F	6.12	I		ARR	
793.F	18	I		ARR	
793.G	1-02	I		ARR	
793.G	6.12	I		ARR	
793.G	18	I		ARR	
793.H	1-02	I		ARR	
793.H	6.12	I		ARR	
793.H	18	I		ARR	
794.A	1-02	I		ARR	
794.A	6.12	I		ARR	
794.A	18	I		ARR	
794.B	1-02	I		ARR	
794.B	6.12	I		ARR	

## Psychiatry (Cont'd)

794.B	18	I	ARR	
794.C	1-02	I	ARR	
794.C	6+12	I	ARR	
794.C	18	I	ARR	
794.D	1-02	I	ARR	
794.D	6+12	I	ARR	
794.D	18	I	ARR	
794.E	1-02	I	ARR	
794.E	6+12	I	ARR	
794.E	18	I	ARR	
794.F	1-02	I	ARR	
794.F	6+12	I	ARR	
794.F	18	I	ARR	
794.G	1-02	I	ARR	
794.G	6+12	I	ARR	
794.G	18	I	ARR	
794.H	1-02	I	ARR	
794.H	6+12	I	ARR	
794.H	18	I	ARR	
795.A	6	I	ARR	CORSON
795.C	6	I	ARR	LISS
799	18	K	MTWTFSS	ARR
85n.A	1-02	S	ARR	
85n.B	1-02	S	ARR	
85n.C	1-02	S	ARR	
85n.D	1-02	S	ARR	
85n.E	1-02	S	ARR	
999		B	ARR	

## WINTER QUARTER

709	1	L	T	2
713	2	D	T	2 - 4
715	1	L	T	3
717	2	D		ARR
719	1	L	T	2
737	6+12	K		ARR
741	1	D	T	3
746	1	L	T	4
793.A	1-02	I		ARR
793.A	6+12	I		ARR
793.A	18	I		ARR
793.B	1-02	I		ARR
793.B	6+12	I		ARR
793.B	18	I		ARR
793.C	1-02	I		ARR
793.C	6+12	I		ARR
793.C	18	I		ARR

793.D	1-02	I	ARR	
793.D	6+12	I	ARR	
793.D	18	I	ARR	
793.E	1-02	I	ARR	
793.E	6+12	I	ARR	
793.E	18	I	ARR	
793.F	1-02	I	ARR	
793.F	6+12	I	ARR	
793.F	18	I	ARR	
793.G	1-02	I	ARR	
793.G	6+12	I	ARR	
793.G	18	I	ARR	
793.H	1-02	I	ARR	
793.H	6+12	I	ARR	
793.H	18	I	ARR	
794.A	1-02	I	ARR	
794.A	6+12	I	ARR	
794.A	18	I	ARR	
794.B	1-02	I	ARR	
794.B	6+12	I	ARR	
794.B	18	I	ARR	
794.C	1-02	I	ARR	
794.C	6+12	I	ARR	
794.C	18	I	ARR	
794.D	1	I	ARR	
794.D	6+12	I	ARR	
794.D	18	I	ARR	
794.E	1	I	ARR	
794.E	6+12	I	ARR	
794.E	18	I	ARR	
794.F	1	I	ARR	
794.F	6+12	I	ARR	
794.F	18	I	ARR	
794.G	1	I	ARR	
794.G	6+12	I	ARR	
794.G	18	I	ARR	
794.H	1	I	ARR	
794.H	6+12	I	ARR	
794.H	18	I	ARR	
795.A	6	I	ARR	CORSON
795.B	6	I	ARR	FISCHER
795.D	6	I	ARR	BESCH
795.E	6	I	ARR	GOLDMAN
795.F	6	I	ARR	RETTIG
799	18	K	MTWTFSS	ARR
85n.A	1-02	S	ARR	
85n.B	1-02	S	ARR	
85n.C	1-02	S	ARR	
85n.D	1-02	S	ARR	



85n.E 1-02 S ARR  
999 B ARR

SPRING QUARTER

71n 1 L T 2  
711 1 L T 3  
716 1 L T 3  
720 1 L T 2  
722 1 L T 3  
737 6.12 K ARR  
793.A 1-02 I ARR  
793.A 6.12 I ARR  
793.A 18 I ARR  
793.B 1-02 I ARR  
793.B 6.12 I ARR  
793.B 18 I ARR  
793.C 1-02 I ARR  
793.C 6.12 I ARR  
793.C 18 I ARR  
793.D 1-02 I ARR  
793.D 6.12 I ARR  
793.D 18 I ARR  
793.E 1-02 I ARR  
793.E 6.12 I ARR  
793.E 18 I ARR  
793.F 1-02 I ARR  
793.F 6.12 I ARR  
793.F 18 I ARR  
793.G 1-02 I ARR  
793.G 6.12 I ARR  
793.G 18 I ARR  
793.H 1-02 I ARR  
793.H 6.12 I ARR  
793.H 18 I ARR  
794.A 1-02 I ARR  
794.A 6.12 I ARR  
794.A 18 I ARR  
794.B 1-02 I ARR  
794.B 6.12 I ARR  
794.B 18 I ARR  
794.C 1-02 I ARR  
794.C 6.12 I ARR  
794.C 18 I ARR  
794.D 1-02 I ARR  
794.D 6.12 I ARR  
794.D 18 I ARR  
794.E 1-02 I ARR  
794.E 6.12 I ARR  
794.E 18 I ARR

794.F 1-02 I ARR  
794.F 6.12 I ARR  
794.F 18 I ARR  
794.G 1-02 I ARR  
794.G 6.12 I ARR  
794.G 18 I ARR  
794.H 1-02 I ARR  
794.H 6.12 I ARR  
794.H 18 I ARR  
795.A 6 I ARR  
799 18 K MTWTFs ARR  
85n.A 1-02 S ARR  
85n.B 1-02 S ARR  
85n.C 1-02 S ARR  
85n.D 1-02 S ARR  
85n.E 1-02 S ARR  
999 B ARR

CONSON

## Psychology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

10n 5 L M W F 8 PECKHAM  
L MTWTF 8  
L MTWTF 9  
L MTWTF 10  
L MTWTF 11  
L MTWTF 12  
L MTWTF 1  
L MTWTF 2  
L MTWTF 3  
L MTWTF 4  
L M W F 4 JOHNSON  
L MTWTF 5  
L M W 7 - 930P  
L T T 7 - 930P  
101 5 L MTWTF 9  
L MTWTF 10  
L MTWTF 12  
L MTWTF 2  
L MTWTF 5  
L T T 7 - 930P  
12n 3 L M W 8 -10  
L M W 10 -12  
L M W 12 - 2  
L M W 2 - 4  
L M W 4 - 6  
L M W 7 - 9 P  
L T T 8 -10  
L T T 10 -12  
L T T 12 - 2  
L T T 2 - 4  
L T T 4 - 6  
L T T 7 - 9 P  
13n 1-04 L 8 ARR HANNA  
L T 4  
L T 9 STURDIVANT  
L W 9  
L T 9  
L M 10  
L T 10  
L W 10  
L 8 ARR  
22n 5 L M W F 4 - 530 SCHONEMANN

## Psychology (Cont'd)

23n	5	L	M W	3	CLARK
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	1 - 230	
		D	T T	230- 4	
		L	M W	4	CLARK
		D	W F	8 - 930	
		D	W F	930-11	
		D	W F	1 - 230	
		D	W F	230- 4	
30n	5	L	MTWTF	8	
31n	3	L	T T	8 - 930	OWEN
311	3	L	M W F	9	
32n	3	L	T T	930-11	GREENWALD
33n	3	L	M W	9	NOLAN
		D	F	9	NOLAN
		D	F	10	
		D	F	1	
		D	T	8	
		D	T	11	
34n	3	L	M W F	8	CLARK
50n	2	L	T	9	
		B	T	10 -12	
		B	T	1 - 3	
		B	T	8 -10	
		B	T	10 -12	
		B	T	1 - 3	
		B	T	3 - 5	
51n	4	L	M	10 -12	ERICKSON
		B	T T	10 -12	
		B	W F	10 -12	
		L	M W	4 - 6	FOTHERINGHAM
		B	ARR		
511	3	L	M W F	10	STAFFORD
52n	4	L	T T	11	OSTROM
		B	ARR		
53n	3	L	M W F	11	MIRELS
531	3+05	L	M W F	1	MIRELS
		B	W F	10 -12	
		B	W F	3 - 5	
54n	3	L	M W F	1	
55n	3	L	M W F	10	THOMPSON
551	3	L	M W F	10	HORROCKS
56n	3	L	M W F	1	LIBBY
57n	3	L	M	7 - 930P	CASSIDY
599	3	D	F	1 - 3	OWEN
		D	ARR		
60n	4	L	T T	10 -12	WICKENS
601	3	L	M W	1	LAWSON
		B	M	3 - 5	
		B	T	3 - 5	
		B	W	3 - 5	
		B	T	3 - 5	
61n	3	L	M W	1 - 230	ERICKSON
612.02	3	L	T	7 - 930P	COOK
		B	ARR		
62n	3	L	M W F	11	JOHNSTON
621	3	L	T T	1030-12	KETCHUM
624	3	L	T T	830-10	KETCHUM
63n	3	L	M W F	2	
64n	3	L	M W F	3	MACMINN
65n	3	L	T T	2	STEWART
		L	T	3	STEWART
651	3	L	M	7 - 930P	ROBINSON
671	3	L	M W	4 - 530	LIBBY
681	3	L	M	7 - 930P	HUELSMAN
683	3	L	T	4 - 6	HUELSMAN
		B	M W F	3	
		B	M W F	4	
693	1-15	B		ARR	
794	3	L	T T	9 -1030	NOLAN
		L	T T	4 - 530	SCHONEMANN
80n	3-15	B		ARR	
805	3	L	M W F	2	HOWELL
806	3	L	M W F	3	MEYER
809	3	L	M W F	4	MEYER
811	2	S	M	10 -12	WICKENS
		S	W	1 - 3	JOHNSON
812	1	D	T	11	LAWSON
817	3	S	T	7 - 930P	BRIGGS
819.C	2	S	M	3 - 5	SHARTLE
824.01	2	S	M	1 - 3	STAFFORD
827	4	L	T T	2 - 5	BRIGGS
831.E	2	S	M	2 - 4	WHERRY
831.F	2	S	T	7 - 9 P	NAYLOR
837	3	L	M W F	9	HORROCKS
84n	3	B		ARR	WENAR
842.G	3	S	M	3 - 530	WENAR
847	2	L	W	2 - 4	GUSTAD
848	2	S		ARR	CLARK
855.01	3	L	M W F	10	SMITH
		B	ARR		
855.02	3	L	M W F	11	SMITH
		B	ARR		
855.05	3	L		ARR	SMITH
856	1	S	W	7 - 9 P	HUELSMAN
861.01	3	L	M W F	10	
861.02	2	B	T T	4 - 6	
		B	T T	2 - 4	
866.01	2	L	W	10 -12	WEAVER
866.02	3	B		ARR	
867	2	S	T	10 -12	WEAVER
		S		ARR	
87n	3	L	M	7 - 930P	BROCK
871	3	L	T T	10 -1130	PEPINSKY
872	3	L	T T	10	BROCK
		B	ARR		
873.A	3	S	W	7 - 930P	OSTROM
873.E	3	S	M W F	9	
881	2	L	M	2 - 4	STEWART
882	3	L	M W F	9	ROBINSON
883.01	3	L	M W F	3	WALSH
883.02	2	B	W F	10 -12	
885	3	L	M	9 -11	
		B	ARR		
886	2+03	L	M	1 - 3	FLETCHER
		B	ARR		
887	2	S	W	3 - 5	FLETCHER



899 1-05 S ARR  
98n 1-15 K ARR  
999 I ARR

WINTER QUARTER

10n	5	L	M W F	8	
		L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	M W F	4	
		L	MTWTF	5	HOWELL
		L	M W	7	- 930P
101	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	T T	7	- 930P
12n	3	L	M W	8	-10
		L	M W	10	-12
		L	M W	12	- 2
		L	M W	2	- 4
		L	M W	4	- 6
		L	M W	7	- 9 P
		L	T T	8	-10
		L	T T	10	-12
		L	T T	12	- 2
		L	T T	2	- 4
		L	T T	4	- 6
		L	T T	7	- 9 P
22n	5	L	M W F	4	- 530 SCHONEMANN
23n	5	L	M W	3	LIBBY
		D	T T	8	- 930
		D	T T	930-11	
		D	T T	1	- 230
		D	T T	230- 4	
		D	T T	4	- 530
		L	M W	4	LIBBY
		D	W F	8	- 930
		D	W F	930-11	
		D	W F	1	- 230
		D	W F	230- 4	
30n	5	L	MTWTF	8	
		L	MTWTF	11	
		L	MTWTF	4	
311	3	L	T T	8	- 930 PECKHAM
312	3	L	M W F	10	JOHNSON
32n	3	L	T T	930-11	OSTROM
33n	3	L	M W	9	NOLAN
		D	T	8	
		D	T	11	
		D	F	9	NOLAN
		D	F	10	
		D	F	11	
		D	F	1	
50n	2	L	T	9	PECKHAM
		B	T	10	-12
		B	T	1	- 3
		B	T	3	- 5
		B	T	8	-10
		B	T	10	-12
		B	T	1	- 3
		B	T	3	- 5
501	3	L	M W F	3	
503	3	L	T T	8	- 930 OWEN
504	3	L	T T	3	- 430 POLAND
51n	4	L	M	10	-12 NOLAN
		B	T T	10	-12
		B	W F	10	-12
		L	T T	1	- 3 FOTHERINGHAM
		B	ARR		

52n	4	L	T T	11	
		B		ARR	
53n	3	L	M W F	11	MIRELS
531	3+05	L	M W F	1	
		B	T	7	P
			T T	1	- 3
54n	3	L	M W F	1	
541	3	L	M W F	4	WALSH
571	3	L	W F	10	-1130 HORROCKS
57n	3	L	M W F	12	CASSIDY
599	3	L	T T	11	JOHNSON
		L	ARR		
611	3	L	T T	4	- 530 STAFFORD
623	3	L	M W	10	-1130 KETCHUM
63n	3	L	T T	4	- 530 OSTROM
631	3	L	M W F	2	LIBBY
65n	3	L	M W F	9	WALSH
66n	3	L	M W F	4	WENAR
67n	3	L	M W F	8	KNOWER
68n	3	L	T	4	- 630 JONES
682	3	L	W	7	- 930P
683	3	L	T	4	- 6 HUELSMAN
		B	M W F	3	
		B	M W F	4	
693	1-15	B		ARR	
788.02	3	L	M W	1	- 230 KETCHUM
794	3	L	T T	3	- 430 SCHONEMANN
80n	3-15	B		ARR	
804	3	L	M W F	4	MEYER
807	3	L	M W F	3	MEYER
81n	5	L	M W F	4	- 530 WICKENS
811	2	S	M	7	- 9 P LAWSON
		S	T	7	- 9 OWEN
812	1	L	W	3	BRIGGS
816	3	L	M W F	11	BRIGGS
817	3	S	M	7	- 930P JOHNSTON
819.D	2	S	M	7	- 930P NAYLOR
819.F	2	S	F	2	- 4 JOHNSTON
822	3	L	M W F	3	STAFFORD
829	4	L	M W	10	-12 ERICKSON
83n	3	L	M W	1	- 3 WHERRY
831.A	2	S	M	10	-12 LAWSON
831.D	2	S	M	3	- 5 ERICKSON
838	2	L	M	2	- 4 THOMPSON
84n	3	B		ARR	WENAR
842.D	3	S	F	2	- 430 HORROCKS
846	3	L	T	7	- 930P CLARK
848	2	S		ARR	CLARK
849	2	S	M	4	- 6 CLARK
855.03	3	L	M W F	10	SMITH
		B	ARR		
855.04	3	L	M W F	11	SMITH
		B	ARR		

## Psychology (Cont'd)

856	1-03	S	T	2 - 4	HUELSMAN
		S	W	7 - 9	HUELSMAN
86n	3	L	M W F	4	
862.01	3	L	M W F	10	
862.02	2	B	M W	1 - 3	
		B	T T	3 - 5	
		B	F	1 - 5	
866.01	2	L	M	3 - 5	SIEGEL
866.02	3	B		ARR	
867	2	S	F	10 - 12	WEAVER
			ARR		
872	3	L	T T	10	BROCK
		B		ARR	
873.B	3	S	M	7 - 930P	BROCK
873.D	3	S	T	7 - 930P	
88n	3	L	W	11	STEWART
		B		ARR	
882	3	L	M	7 - 930P	ROBINSON
883.01	3	L	M W F	2	FLETCHER
883.02	2	B	T T	10 - 12	
		B	T T	1 - 3	
885	3	L	M	8 - 10	STEWART
886	2-03	L	M	9 - 11	
		B		ARR	
887	2	S	W	3 - 5	CAMPBELL
899	1-05	S		ARR	
98n	1-15	K		ARR	
999		I		ARR	

## SPRING QUARTER

10n	5	L	M W F	8	JOHNSTON
		L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	11	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	7 - 930P	
		L	T T	7 - 930P	
101	5	L	MTWTF	9	
		L	MTWTF	10	
		L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	3	
		L	MTWTF	4	
		L	MTWTF	5	
		L	T T	7 - 930P	
12n	3	L	M W	8 - 10	
		L	M W	10 - 12	
		L	M W	12 - 2	
		L	M W	2 - 4	
		L	M W	4 - 6	
		L	T T	8 - 10	
		L	T T	12 - 2	
13n	1-04	L	M	10 - 12	HANNA
		L	W	3 - 5	
		L	T	3 - 5	
		L	T	9	STURDIVANT
		L	W	9	
		L	T	9	
		L	M	10	
		L	T	10	
		L	W	10	
		B		ARR	

21n	5	L	MTWTF	11	
22n	5	L	MTWTF	11	GETTYS
23n	5	L	M W	3	CLARK
		D	T T	8 - 930	
		D	T T	930-11	
		D	T T	1 - 230	
		D	T T	230-4	
		D	T T	4 - 530	
		L	M W	4	CLARK
		D	W F	8 - 930	
		D	W F	930-11	
		D	W F	1 - 230	
		D	W F	230-4	
30n	5	L	MTWTF	8	
31n	3	L	T T	8 - 930	OWEN
312	3	L	M W F	9	JOHNSON
32n	3	L	T T	930-11	
33n	3	L	M W	9	NOLAN
		D	F	8	
		D	F	9	NOLAN
		D	F	9	
		D	F	10	
		D	F	11	
		D	F	1	
34n	3	L	M W	4 - 530	WENAR
50n	2	L	T	9	PECKHAM
		B	T	1 - 3	
		B	T	3 - 5	
		B	T	8 - 10	
		B	T	1 - 3	
		B	T	3 - 5	
502	3	L	M W F	3	
505	3	L	M W F	9	
51n	4	L	M	10 - 12	SCHONEMANN
		B	T T	10 - 12	
		B	W F	10 - 12	
511	3	L	M W F	2	STAFFORD
512	3	L	M W F	9	FOTHERINGHAM
52n	4	L	T T	11	GREENWALD
53n	3	L	M W F	1	MIRELS
531	3-05	L	M W F	1	
		B	T	7	
		B	T T	1 - 3	
542	3	L	M W F	11	CAMPBELL
551	3	L	W F	10 - 1130	HORROCKS
552	2-03		ARR		WENAR
599	3	L	M	1 - 3	LAWSON
		B	ARR		
622	3	L	T T	1030-12	KETCHUM
632	3	L	M W F	2	
633	2	L	T T	9	KNOWER
64n	3	L	T T	930-11	PEPINSKY
651	3	L	M	7 - 930P	HUELSMAN
661	3	L	M W F	11	CLARK
683	3	L	T	4 - 6	HUELSMAN
		B	M W F	3	
		B	M W F	4	
684	3	L	M W F	11	LIBBY
693	1-15	B		ARR	
788.01	3	L	W	7 - 930P	OSTROM
		B		ARR	
794	3	L	T T	830-10	KETCHUM
		L	T T	2 - 330	NOLAN
		L	T T	3 - 430	PECKHAM
80n	3-15	B		ARR	



801	4	L	T T	10 -12	WICKENS
802	3	L	M W F	4	LAWSON
803	3	L	M W F	9	OWEN
808	3	L	M W F	3	MEYER
811	2	S	M	7 - 9 P	JOHNSON
		S	W	10 -12	ERICKSON
		S	F	1 - 3	MEYER
817	3	S	M	7 - 930P	HOWELL
		S	T	7 - 930P	BRIGGS
		S	W	7 - 930P	JOHNSTON
819.B	2	S	T	3 - 5	BRIGGS
819.G	2	S	W	1 - 3	SHARTLE
823	3	L	M W F	3	STAFFORD
824.02	2	S	M	3 - 5	ERICKSON
824.05	2	S	M	9 -11	
828	4	L	T T	4 - 6	WHERRY
831.B	2	S	M	7 - 9 P	NAYLOR
831.C	2	S	W	3 - 5	SCHONEMANN
841	1	L	M	3	HORROCKS
842.B	3	S	M	3 - 530	THOMPSON
848	2	S		ARR	CLARK
849	2	S	W	4 - 6	LIBBY
853	3	L	M	7 - 930P	CASSIDY
854	3	L	T	2 - 430	SMITH
855.05	3	C		ARR	SMITH
856	1-03	S	T	2 - 4	HUELSMAN
		S	W	7 - 9 P	HUELSMAN
863.01	3	L	M W F	10	WEAVER
863.02	2	B		ARR	
864.01	3	L	M W F	9	SIEGEL
864.02	2	B	M W	1 - 3	
		B	T T	2 - 4	
		B	F	1 - 5	
866.02	3	B		ARR	
867	2	S	T	10 -12	
		S		ARR	
872	3-12	L	T T	10	BROCK
		B		ARR	
873.C	3	S	M	7 - 930P	BROCK
880	3	L	T	2	STEWART
		B		ARR	
881	2	L	T T	3	MACMINN
884	3	L	M W F	1	FLETCHER
885	3	L	M	9 -11	WALSH
		B		ARR	
886	2-03	L	M	9 -11	FLETCHER
		B		ARR	
887	2	S	W	4 - 6	WALSH
899	1-05	S		ARR	
980	1-15	K		ARR	
999		I		ARR	

## Radiology

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

740	6.12	WSC		ARR	
740	18	WSC		ARR	
750	1	LDS		ARR	
793	6.12	I		ARR	
793	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	

### WINTER QUARTER

740	6.12	WSC		ARR	
740	18	WSC		ARR	
750	1	LDS		ARR	
793	6.12	I		ARR	
793	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	

### SPRING QUARTER

740	6.12	WSC		ARR	
740	18	WSC		ARR	
793	6.12	I		ARR	
793	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	

## Romance Linguistics

No. Crd't. Sec. Day Time Instructor

### AUTUMN QUARTER

693	1-05	C		ARR	
794	1-05	C		ARR	

### WINTER QUARTER

693	1-05	C		ARR	
794	1-05	C		ARR	
811	5	LR	MTWTF	3	GRIFFIN

### SPRING QUARTER

693	1-05	C		ARR	
794	1-05	C		ARR	
812	5	LR	MTWTF	3	GRIFFIN.

## Rural Sociology

No.	Crd't. Sec.	Day	Time	Instructor
AUTUMN QUARTER				
105	5	D D D	MTWTF 9 MTWTF 11 MTWTF 2	
315	5	D	MTWTF 10	MANGUS
316	5	D B	MT TF 3 W 3 - 5	MITCHELL MITCHELL
593	2-05	C	ARR	
693	2-05	C	ARR	
996	2-04	S	ARR	
999	I		ARR	

## WINTER QUARTER

105	5	D D D D D	MTWTF 9 MTWTF 10 MTWTF 11 MTWTF 2 MTWT S 9	
593	2-05	C	ARR	
605	5	D	MTWTF 11	MANGUS
693	2-05	C	ARR	
996	2-04	S	ARR	
999	2-04	I	ARR	

## SPRING QUARTER

105	5	D D D	MTWTF 9 MTWTF 11 MTWTF 2	
317	3	D	T T 3 - 5	MITCHELL
421	3	D	M W F 3	
593	2-05	C	ARR	
693	2-05	C	ARR	
996	2-04	S	ARR	
999	I		ARR	

## Russian

No.	Crd't. Sec.	Day	Time	Instructor
AUTUMN QUARTER				
101	5	R R R R R R R	MTWTF 8 MTWTF 9 MTWTF 10 MTWTF 12 MTWTF 1 MTWTF 2 M WT 6 - 730P	
102	5	R R	MTWTF 9 MTWTF 1	
103	5	R R	MTWTF 11 MTWTF 2	

104	5	R R R	MTWTF 9 MTWTF 11 MTWTF 2	
107	2	R	T T 12	
112	5+10	R R R	MTWTF 9 MTWTF 10 MTWTF 1	KRESKY
408	2	R	T T 10	
420	5	L	MTWT 1	TWAROG
475	3	L	M W F 10	KRESKY
571		R	MTWTF 12	
572		R	M W F 1	
609	3	R	M W F 12	
630	5	L	T T 11 - 1230	NAYLOR
653	5	L	M W F 11	CHALSMAN
830	5	L	M W F 3	SILBAJORIS
851	3-05	S	T 3 - 5	SILBAJORIS

## WINTER QUARTER

101	5	R R R	MTWTF 10 MTWTF 12 MTWTF 2	
102	5	R R R R R	MTWTF 8 MTWTF 9 MTWTF 10 MTWTF 1 M WT 6 - 730P	
103	5	R R	MTWTF 9 MTWTF 1	
104	5	R R	MTWTF 11 MTWTF 2	
108	2	R	T T 12	
130	5	R	MTWTF 2	
405	3	R R	M W F 11 M W F 2	
406	2	R R	T T 11 T T 2	
412	5+10	R R	MTWTF 9 MTWTF 11	KRESKY
421	5	L	MTWTF 1	TWAROG
476	3	LR	M W F 10	KRESKY
571		R	MTWTF 1	
572		R	M W F 12	
610	3	R	M W F 12	
640	5	LR	T T 11 - 1230	
654	5	L	M W F 11	CHALSMAN
810	5	LR	M W F 4 - 530	NAYLOR
820	3	L	M W F 1	NAYLOR
831	5	L	M W F 3	SILBAJORIS
852	3-05	S	T 7 - 9 P	OULANOFF

## SPRING QUARTER

101	5	R R	MTWTF 9 MTWTF 2	
102	5	R R R	MTWTF 10 MTWTF 12 MTWTF 2	



103	5	R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	1	
		R	MWT	6	- 730P
104	5	R	MTWTF	9	
		R	MTWTF	2	
109	2	R	T T	12	
405	3	R	M W F	11	
406	2	R	T T	11	
407	3	R	M W F	12	
408	2	R	T T	12	
477	3	LR	M W F	10	
572		R	M W F	1	
612	15	LR	MTWTF	9	
		LR	MTWTF	10	
		LR	MTWTF	1	
622	5	L	MTWT	1	OULANOFF
635	5	LR	T T	11	-1230
645	5	L	M W F	1	CHALSMA
655	5	L	M W F	11	OULANOFF
821	3	L	M W F	2	NAYLOR
84n	5	LR	M W F	3	SILBAJORIS

981	2-10	I			
999		I			
WINTER QUARTER					
693	2-10	I		ARR	
783	3-05	I		ARR	
871	3-05	S	T	3	- 5
881	2-05	I		ARR	
981	2-10	I		ARR	
999		I		ARR	
SPRING QUARTER					
693	2-10	I		ARR	
783	3-05	I		ARR	
871	3-05	S	T	7	- 9
875	5	S	T	3	- 5
881	2-05	I		ARR	
981	2-10	I		ARR	
999		I		ARR	
					NAYLOR
					KRZYZANOWSKI

## Serbo-Croatian

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
601	3	R	M W F	10	
WINTER QUARTER					
602	3	R	M W F	10	
SPRING QUARTER					
603	3	R	M W F	10	

## Social Work

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
323	5	D	T T	8	-10
325	5	D	T T	1	- 3
327	5	D	T T	10	-12
34n	5	L	M W F	11	
		B	T	10	-12
		B	T	1	- 3
		B	T	10	-12
		B	T	1	- 3
423	5	D	T T	1	- 3
489	3-05	I		ARR	
		S	T	1	- 3
493	1-05	I		ARR	
503	5	D	M W	7	- 930P
505	3	D	M W F	1	
509	3	D	M W F	9	
52n	3	D	MT	230-	4
53n	3	D	MT	1	- 230
55n	2	D	M	10	-12
		D	T	10	-12
562	2	D	M	10	-12
57n	2	D	M	10	-12
		D	T	10	-12
585	5	L	T	9	-1130
		S	F	8	-10
		S	F	1	- 3
		K		ARR	
63n	4	D	TF	1	- 3

## Slavic Languages and Literatures

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
693	2-10	I		ARR	
783	3-05	I		ARR	
86n	3	L	M W F	4	ROBINSON
861	5	L	M W F	1	NAYLOR
87n	3-05	S	T	7	- 9 P
88n	3	L	T	9	-11
881	2-05	I			

**Social Work (Cont'd)**

64n	1-05		ARR		
65n	3	D	TF	10	-1130
662	4	D	TF	10	-1130
67n	3	D	TF	10	-1130
685	7	K	ARR		
84n	3	D	T	3 - 5	61 HR ARR
		D			
899	1-05	S	ARR		
999	I		ARR		

**WINTER QUARTER**

323	5	D	T T	8	-10
325	5	D	T T	1	- 3
327	5	D	T T	10	-12
34n	5	L	M W F	11	
		B	T	10	-12
		B	T	1	- 3
		B	T	10	-12
		B	T	1	- 3
423	5	D	T T	1	- 3
425	5	D	T T	10	-12
489	3-05	I	ARR		
		S	T	8	-10
493	1-05		ARR		
503	5	D	M W	7	- 930P
507	3	D	M W F	1	
509	3	D	M W F	9	
522	3	D	MT	1	- 230
526	3	D	TF	1	- 230
532	3	D	MT	230-	4
552	3	D	M	10	-1130
		D	T	830-10	
562	2	D	T	10	-12
564	3	D	M	10	-1130
		D	T	830-10	
57n	2	D	T	10	-12
572	3	D	M	10	-1130
		D	T	830-10	
585	5	K	ARR		
64n	1-05		ARR		
652	3	D	TF	10	-1130
672	3	D	TF	10	-1130
685	7	K	ARR		
694.F	3	S	TF	10	-1130
841	3	D	T	3 - 5	61 HR ARR
		D			
899	1-05	S	ARR		
999	I		ARR		

**SPRING QUARTER**

323	5	D	T T	8	-10
325	5	D	T T	1	- 3

327	5	D	T T	10	-12
34n	5	L	M W F	11	
		B	T	10	-12
		B	T	1	- 3
		B	T	10	-12
		B	T	1	- 3
423	5	D	T T	1	- 3
425	5	D	T T	10	-12
427	5	D	T T	3	- 5
489	3-05	I	ARR		
		S	T	8	-10
493	1-05		ARR		
503	5	D	M W	7	- 930P
505	3	D	M W F	1	
509	3	D	M W F	9	
534	3	D	MT	1	- 230
54n	5	L	MT	10	-12
		B	T	3	- 5
554	3	D	MT	830-10	
574	3	D	MT	830-10	
585	5	K	ARR		
60n	3	D	T	10	-12
603	2	D	T	10	-12
624	3	D	TF	1	- 230
64n	1-05		ARR		
66n	3	D	MT	830-10	
685	7	K	ARR		
694.B	3	S	F	10	-12
694.E	3	S	F	10	-12
		S	T	10	-12
694.F	3	S	F	10	-12
842	3	D	T	3 - 5	61 HR ARR
		D			
899	1-05	S	ARR		
999	I		ARR		

**Sociology**

No.	Crd't.	Sec.	Day	Time	Instructor
<b>AUTUMN QUARTER</b>					
101	5	D	MTWTF	8	
		D	MTWTF	9	
		L	M W F	11	
		R	T T	8	CUBER
		R	T T	9	
		R	T T	10	
		R	T T	11	
		D	MTWTF	12	
		D	MTWTF	1	
		L	M W F	2	CUBER
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	MTWTF	3	
		L	M W F	4	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	T T	7	- 9 P



201	5	D	MTWTF	8	
		D	MTWTF	11	
		D	MTWTF	12	
		D	MTWTF	2	
		D	MTWTF	3	
202	5	D	MTWTF	8	
		L	T T	11	
		R	M W F	8	
		R	M W F	9	
		R	M W F	10	
		R	M W F	11	
		D	MTWTF	2	
207	3	D	M W F	12	EYNON
22n	5	L	M W F	1	THOMAS
		R	T T	1	
		R	T T	2	
		R	T T	3	
25n	5	D	M W F	2	CLEAVER
		B	M W	1 - 3	
		B	T T	1 - 3	
28n	3	D	M W F	1	NOEL
		D	M W F	3	
29n	5	D	MTWTF	1	JONASSEN
		B	ARR	2	
		B	MTWTF	2	
		B	ARR		
33n	3	D	M W F	8	
		D	M W F	9	
		D	M W F	12	
		D	M W F	2	
405	3	D	M W F	1	QUARANTELLI
41n	5	D	MTWTF	10	DINITZ
		D	MTWTF	1	RECKLESS
411	5	D	MTWTF	11	EYNON
43n	4	D	T T	1	CLARKE
		R	M W	1	
		R	M W	2	
		R	M W	3	
44n	3	D	M W F	2	FLETCHER
463	4	D	MTWT	10	
		D	MTWT	4	DYNES
464	3	D	M W F	3	HELFRICH
467	3	D	M W F	2	DYNES
47n	4	D	MTWT	10	WARSHAY
		D	MTWT	1	
48n	3	D	M W F	9	VANDERZANDEN
		D	M W F	9	MARTIN
		D	M W F	2	VANDERZANDEN
488	5	D	MTWTF	3	VAUGHAN
56n	4	D	MTWT	1	
59n	4	D	MTWT	11	JONASSEN
615	3	S	W	3 - 5	RECKLESS
65n	3	D	M W F	10	SCHWIRIAN
661	4	D	MTWT	9	HAAS
68n	4	D	MTWT	11	WARSHAY
693	1-04	C		ARR	
704.A	3	S	T	4 - 6	NAGI
752	3	D	M W F	9	BULLOCK
868	3	S	T	3 - 5	HALL
895.01	5	S	M W	4 - 6	
895.03	5	S	MTWT	4 - 6	
895.04	5	S	W F	4 - 6	
895.06	5	S	M F	4 - 6	
895.07	5	S	T T	4 - 6	

895.09	5	S	M W	4 - 6	
895.10	5	S	W F	4 - 6	
895.12	5	S	M F	4 - 6	
899	1-05	S		ARR	
999		I		ARR	

WINTER QUARTER

101	5	D	MTWTF	8	
		D	MTWTF	9	
		D	MTWTF	10	
		L	M W F	11	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		D	MTWTF	12	
		L	M W F	2	
		R	T T	12	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	MTWTF	3	
		L	M W F	4	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	T T	7 - 9 P	
201	5	D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	2	
		D	MTWTF	3	
202	5	D	MTWTF	8	
		L	T T	11	DINITZ
		R	M W F	8	
		R	M W F	9	
		R	M W F	11	
		R	M W F	1	
		R	M W F	3	
		D	MTWTF	2	
		D	M W	7 - 910P	
206	3	D	M W F	1	THOMAS
207	3	D	M W F	10	EYNON
22n	5	L	M W F	1	VAUGHAN
		R	T T	1	
		R	T T	2	
		R	T T	3	
25n	5	D	M W F	2	
		B	M W	1 - 3	
		B	T T	1 - 3	
28n	3	D	M W F	2	NOEL
29n	5	D	MTWTF	9	HALL
		B	ARR	1	
		D	MTWTF	1	JONASSEN
		B	ARR		
33n	3	D	M W F	8	
		D	M W F	10	
		D	M W F	12	
		D	M W F	1	
		D	M W F	4	
395	3	D	M W F	2	SCHWIRIAN
403	5	D	MTWTF	3	CARD
405	3	D	M W F	9	WARSHAY
		D	M W F	11	QUARANTELLI
41n	5	D	MTWTF	11	RECKLESS
		D	MTWTF	1	DINITZ
43n	4	L	T T	1	KNUDSEN
		R	M W	1	
		R	M W	2	
		R	M W	3	
432	4	D	MTWT	2	KNUDSEN
434	4	D	MTWT	1	CLARKE
44n	3	D	M W F	3	NAGI
463	4	D	MTWT	1	DYNES

## Sociology (Cont'd)

464	3	D	M W F	11	HELFRICH
467	3	D	M W F	2	DYNES
47n	4	D	MTWT	11	THOMAS
48n	3	D	M W F	9	VANDERZANDEN
		D	M W F	4	VANDERZANDEN
488	5	D	MTWTF	3	WARSHAY
492	3	D	M W F	10	JONASSEN
523	5	D	MTWTF	1	CORWIN
59n	4	D	MTWT	3	JONASSEN
608	3	D	M W F	9	QUARANTELLI
65n	3	D	M W F	10	SCHWIRIAN
666	3	D	M W F	3	HALL
693	1-04	C		ARR	
704.R	3		M W F	10	BULLOCK
859	3			ARR	
868	3			ARR	
868.R	3			ARR	HAAS
895.01	5	S	M W	20	
895.03	5	S	T T	4 - 6	
895.04	5	S	M F	4 - 6	
895.08	5	S	W F	4 - 6	
895.09	5	S	T T	4 - 6	
895.11	5	S	M W	4 - 6	
895.12	5	S	M F	4 - 6	
899	1-05	S		ARR	
999		I			

## SPRING QUARTER

101	5	D	MTWTF	8	
		D	MTWTF	10	
		D	M W F	11	CUBER
		R	T T	8	
		R	T T	9	
		R	T T	10	
		R	T T	11	
		D	MTWTF	12	
		L	M W F	2	CUBER
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	MTWTF	3	
		L	M W F	4	
		R	T T	1	
		R	T T	2	
		R	T T	3	
		D	T T	7	- 910P
201	5	D	MTWTF	8	
		D	MTWTF	10	
		D	MTWTF	12	
		D	MTWTF	3	
202	5	D	MTWTF	8	
		D	MTWTF	9	
		L	T T	11	DINITZ
		R	M W F	8	
		R	M W F	9	
		R	M W F	11	
		R	M W F	1	
		R	M W F	3	
		D	MTWTF	2	
		D	T T	7	- 9 P
204	4	D	MTWTF	1	THOMAS
207	3	D	M W F	10	EYNON

208	5	D	MTWTF	2	CLATWORTHY
22n	5	L	M W F	1	THOMAS
		R	T T	1	
		R	T T	2	
		R	T T	3	
25n	5	D	MTWTF	2	CLEAVER
		B	M W	1	- 3
		B	T T	1	- 3
28n	3	D	M W F	2	NOEL
29n	5	D	MTWTF	9	JONASSEN
		B	ARR	1	
		D	MTWTF	1	HALL
		B	ARR		
33n	3	D	M W F	8	
		D	M W F	12	
		D	M W F	3	
		D	MTWTF	4	
395	3	D	M W F	9	SCHWIRIAN
405	3	D	M W F	11	QUARANTELLI
		D	M W F	1	QUARANTELLI
41n	5	D	MTWTF	11	RECKLESS
		D	MTWTF	1	DINITZ
411	5	D	MTWTF	11	EYNON
43n	4	L	T T	1	KNUDSEN
		R	M W	1	
		R	M W	2	
		R	M W	3	
462	3	D	M W F	9	HAAS
463	4	D	MTWT	4	
464	3	D	MTWT	12	HELFRICH
465	4	D	MTWT	9	CLARKE
467	3	D	M W F	11	DYNES
47n	4	D	MTWT	10	WARSHAY
48n	3	D	M W F	2	VANDERZANDEN
		D	M W F	3	NOEL
48R	5	D	MTWTF	3	VAUGHAN
509	3	D	M W F	1	BOURGUIGNON
693	1-04	S		ARR	
704.C	3	D	M W F	10	BULLOCK
752	3	C	M W F	10	BULLOCK
805	3	D	M	3	- 530 QUARANTELLI
818	3	S	F	3	- 5 RECKLESS
859	3	S		ARR	
868	3	S	T	3	- 5 DYNES
891	3	S	T	4	- 6 VAUGHAN
894	3	D	M W F	3	JONASSEN
895.03	5	S	T T	4	- 6
895.05	5	S	M W	4	- 6
895.07	5	S	T T	4	- 6
895.08	5	S	M W	4	- 6
895.09	5	S	M F	4	- 6
895.10	5	S	M W	4	- 6
895.11	5	S	T T	4	- 6
895.12	5	C	W F	ARR	
899	1-05	C		ARR	
999		I		ARR	



# Spanish

No.	Crd't.	Sec.	Day	Time	Instructor		
AUTUMN QUARTER							
101	5	R	MTWTF	8	P		
		R	MTWTF	9			
		R	MTWTF	10			
		R	MTWTF	11			
		R	MTWTF	12			
		R	MTWTF	1			
		R	MTWTF	2			
		R	MTWTF	3			
		R	MTWTF	4			
R	MTWTF	7					
102	5	R	MTWTF	8			
		R	MTWTF	9			
		R	MTWTF	10			
		R	MTWTF	11			
		R	MTWTF	12			
		R	MTWTF	1			
		R	MTWTF	2			
		R	MTWTF	3			
		R	MTWTF	4			
103	5	R	MTWTF	8			
		R	MTWTF	9			
		R	MTWTF	10			
		R	MTWTF	11			
		R	MTWTF	12			
		R	MTWTF	1			
		R	MTWTF	2			
R	MTWTF	3					
104	5	R	MTWTF	8			
		R	MTWTF	9			
		R	MTWTF	10			
		R	MTWTF	11			
		R	MTWTF	12			
		R	MTWTF	1			
		R	MTWTF	2			
		R	MTWTF	4			
105	5	R	MTWTF	9			
		R	MTWTF	10			
		R	MTWTF	1			
		R	MTWTF	2			
401	3	R	M W F	11			
		402	3	R		M W F	10
				R		M W F	1
R	M W F	2					
404	5	R	MTWTF	12			
421	5	LR	MTWTF	10			
		LR	MTWTF	11			
423	5	LR	MTWTF	10			
571		R	MTWTF	12			
		R	MTWTF	4			
572		R	M W F	3			
		R	M W F	4			
573		R	M W F	4			
607	5	R	MTWTF	11	BABCOCK		
		R	MTWTF	2			
609	5	R	MTWTF	1	PARDO GRIFFIN		
		R	MTWTF	2			
622	3	LR	M W F	11	FROSCH		
629	3	LR	M W F	1	BABCOCK		
693	1-05	C	M W F	ARR			
722	5	LR	MTWTF	9	LEVISI		
783	3-05			ARR			
794	1-05	C		ARR			
811	3	LR	M W F	3	GRIFFIN		
831	3-05	S	T	3 - 5	PARDO		
999		I		ARR			

## WINTER QUARTER

101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	
102	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	
103	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	4	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	4	
105	5	R	MTWTF	9	
		R	MTWTF	11	
		R	MTWTF	1	
		R	MTWTF	2	
162	5	R	MTWTF	12	ANGELO
271	5	R	MTWTF	1	
401	3	R	M W F	1	
403	3	R	M W F	9	
		R	M W F	11	
		R	M W F	2	
		R	M W F	3	
404	5	R	MTWTF	10	
		R	MTWTF	11	
421	5	LR	MTWTF	10	
		LR	MTWTF	1	
423	5	LR	MTWTF	2	
571		R	MTWTF	12	
		R	MTWTF	4	
572		R	M W F	3	
		R	M W F	4	
573		R	M W F	4	
605	3	R	M W F	10	PARDO
621	5	R	MTWTF	12	LEVISI
624	3	R	M W F	9	FROSCH
693	1-05	C		ARR	
783	3-05			ARR	
794	1-05	C		ARR	
812	3	LR	M W F	2	GRIFFIN
820	3	LR	M W F	11	PARDO
832	3-05	S	T	2	LEVISI
885	5	LR	MTWTF	10	FROSCH
999				ARR	

ANGELO

PARDO

LEVISI

FROSCH

GRIFFIN

PARDO

LEVISI

FROSCH

ARR

Spanish (Cont'd)

SPRING QUARTER

101	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
102	5	R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
103	5	R	MTWTF	1	
		R	MTWTF	2	
		R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	7	
104	5	R	MTWTF	8	
		R	MTWTF	9	
		R	MTWTF	10	
		R	MTWTF	11	
		R	MTWTF	12	
		R	MTWTF	1	
		R	MTWTF	2	
105	5	R	MTWTF	3	
		R	MTWTF	4	
		R	MTWTF	9	
		R	MTWTF	10	
163	5	R	MTWTF	12	
		R	MTWTF	1	
401	3	R	M W F	1	
		R	M W F	9	
402	3	R	M W F	10	
		R	M W F	11	
404	5	R	MTWTF	12	
		R	MTWTF	1	
421	5	LR	MTWTF	10	
		LR	MTWTF	2	
422	5	LR	MTWTF	10	
		LR	MTWTF	12	
571		R	MTWTF	12	
		R	MTWTF	4	
572		R	M W F	3	
		R	M W F	4	
573		R	M W F	4	
605	3	R	M W F	3	
607	5	R	MTWTF	4	
628	3	LR	M W F	10	
		LR	MTWTF	1	
630	5	LR	MTWTF	1	
		LR	MTWTF	1	
693	1-05	C	ARR		
		C	ARR		
721	5	LR	MTWTF	9	
		LR	MTWTF	9	
783	3-05		ARR		
			ARR		
794	1-05	C	ARR		
		C	ARR		
813	3	LR	M W F	2	
		LR	M W F	2	
821	3	LR	M W F	11	
		LR	M W F	11	

FROSCH

BABCOCK

LEVISI

GRIFFIN

PARDO

833	3-05	S	T	2	-	4	FROSCH
999		I		ARR			

Speech

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

35	5	B	MTWTF	8	GOFF BLACK
		B	MTWTF	9	GOFF
40A	0+03	B	MTWTF	12	GOFF
		B	MTWTF	12	MOSER
40B	0+03	B	MTWTF	12	STROMSTA
		B	MTWTF	12	
40C	0+03	B	MTWTF	12	
		B	MTWTF	12	
40D	0+03	B	MTWTF	12	
		B	MTWTF	12	
40E	0+03	B	T T	7 - 930P	GOFF
		B	T T	7 - 930P	
105	5	DR	MTWTF	8	BROOKS BAKER
		DR	MTWTF	9	BROOKS BAKER
		DR	MTWTF	10	BROOKS BAKER
		DR	MTWTF	12	BROOKS BAKER
		DR	MTWTF	1	BROOKS BAKER
		DR	MTWTF	2	BROOKS BAKER
		DR	MTWTF	3	BROOKS BAKER
		DR	MTWTF	4	BROOKS BAKER
		DR	T T	7 - 930P	BROOKS BAKER
		DR	T T	7 - 930P	
110	5	DR	MTWTF	8	RAGSDALE
		DR	MTWTF	9	RAGSDALE
		DR	MTWTF	10	RAGSDALE
		DR	MTWTF	1	RAGSDALE
		DR	MTWTF	2	RAGSDALE
		DR	M W	7 - 930P	RAGSDALE
115	3	D	M W F	8	MALL
		D	M W F	9	RILEY
		D	M W F	10	RILEY
120	3	DR	M W F	10	RILEY
		DR	M W F	12	RILEY
125	3	D	M W F	8	LAWSON
		D	M W F	8	
135	3	LB	M W F	10	MOSER
		LB	M W F	11	
		LB	M W F	12	BLACK
		LB	M W F	1	
		LB	M W F	2	GOFF
		LB	M W F	4	
165	5	L	M W F	10	BOWEN
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
165	5	L	M W F	3	CREPEAU
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
165	5	L	M W F	3	RITTER
		R	T	8	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
201	5	D	MTWTF	1	BROOKS
		D	MTWTF	1	
		D	MTWTF	1	
		D	MTWTF	1	



205.A	1	B	T T	8	KNOWER
205.B	1	B		ARR	LAWSON
205.C	1	B	T	3 - 5	SCHOEN
205.D	1	B	T	1 - 3	
		B	T	4	
209	3	D	M W F	10	KNOWER
217	5	D	MTWTF	10	RAGSDALE
221	5	DR	MTWTF	9	SCHOEN
		DR	MTWTF	10	SCHOEN
225	5	D	MTWTF	2	NOTHERINGHAM
229	3	DRB	M W F	1	LYNCH
		DRB	M W F	2	LYNCH
235	3	L	T T	2	SCHLANGER
		R	M	8	SCHLANGER
		R	M	4	SCHLANGER
		R	T	3	SCHLANGER
		R	T	3	SCHLANGER
		R	F	4	SCHLANGER
240	3	L	M W F	1	STROMSTA
245	3	L	M W F	10	SINGH
265	1	B		ARR	CREPEAU
270	5	L	MTWT	9	EMERY
		B		63 HR ARR	
275	3	D	M W F	11	RITTER
280	3	DRB	M W	11 - 1	AYERS
		DRB	M W	11 - 1	GLANCY
		DRB	M W	3 - 5	RITTER
305	5	DR	MTWTF	9	LAWSON
315	3	D	M W F	8	BAKER
325	3	D	M W F	9	MALL
410	4	DRB	M W F	4	RILEY
440	5	L	MTWTF	3	STROMSTA
465	5	DRB	MTW	10	CREPEAU
		DRB	F	10 - 12	CREPEAU
505	5	DR	MTWTF	1	RIEKE
510	5	DRB	M W	3 - 5	
		DRB	F	3	
525	4	DB	M W F	2	
540	5	L	MTWTF	1	BRANNON
550	3	L	M W F	2	MOSER
565	5	ORB	MTWTF	8	LEWIS
616	5	DR	MTWTF	12	RIEKE
621	5	D	MTWTF	9	GOLDEN
626	5	DB	MTWT	8	MALL
644	3	L	T	7 - 930P	
671	3	L	M W F	11	MCDOWELL
693	1-05	C		ARR	
755.A	3	K	MTWTF	12	MOSER
		K		4 HR ARR	
755.B	3	K	MTWTF	12	MOSER
		K		4 HR ARR	
755.C	3	K	MTWTF	12	MOSER
		K		4 HR ARR	
770	3	D	M W F	9	CREPEAU
783	3-15	C		ARR	
794	3-05	C		ARR	
806	3-05	D	M W F	1	LYNCH

811.A	3-05	S	M W	3 - 5	GOLDEN
816.A	3-05	S	T T	3 - 5	RIEKE
821.A	3-05	S	M W	9 - 11	LYNCH
821.B	3-05	S	T T	9 - 11	MONAGHAN
826.A	3-05	S	M W	1 - 3	KNOWER
844.A	3-15	K		ARR	MOSER
844.B	3-15	K		ARR	MOSER
844.C	3-15	K		ARR	MOSER
870	3	D	T T	1	MORROW
880.A	3-05	D	M W	3 - 5	LEWIS
880.B	3-05	D	T T	3 - 5	BOWEN
890	3	DB	M W F	8	KNOWER
894	3-05	D		ARR	
899.A	3-05	S	M W	7 - 9 P	RAGSDALE
940.A	3-05	S	M	4 - 6	BLACK
940.B	3-05	S	W	4 - 6	SCHLANGER
950.A	1-05	S	T	4 - 6	BLACK
950.B	1-05	S	T	4 - 6	BRANNON
950.C	1-05	S		ARR	GOFF
970.A	2-05	S	M W	1 - 3	MCDOWELL
970.B	2-05	S	T T	1 - 3	RITTER
999		I		ARR	

WINTER QUARTER

35	5	B	MTWTF	9	GOFF
40.A	0-03	B	MTWTF	12	GOFF
40.B	0-03	B	MTWTF	12	MOSER
40.C	0-03	B	MTWTF	12	STROMSTA
40.D	0-03	B	MTWTF	12	
40.E	0-03	B	T T	7 - 930P	GOFF
105	5	DR	MTWTF	8	BROOKS,BAKER
		DR	MTWTF	9	BROOKS,BAKER
		DR	MTWTF	10	BROOKS,BAKER
		DR	MTWTF	12	BROOKS,BAKER
		DR	MTWTF	1	BROOKS,BAKER
		DR	MTWTF	2	BROOKS,BAKER
		DR	MTWTF	3	BROOKS,BAKER
		DR	MTWTF	4	BROOKS,BAKER
		DR	T T	7 - 930P	BROOKS,BAKER
110	5	DR	MTWTF	8	RAGSDALE
		DR	MTWTF	9	RAGSDALE
		DR	MTWTF	10	RAGSDALE
		DR	MTWTF	1	RAGSDALE
		DR	MTWTF	2	RAGSDALE
		DR	M W	7 - 930P	RAGSDALE
115	3	D	M W F	3	MALL
120	3	DR	M W F	9	RILEY
		DR	M W F	10	RILEY
		DR	M W F	12	RILEY
125	3	D	M W F	8	LAWSON
135	3	LB	M W F	10	IRWIN,MOSER
		LB	M W F	12	BLACK
		LB	M W F	1	
		LB	M W F	2	GOFF
		LB	M W F	4	

Speech    (Cont'd)

165	5	L	M W F	10	BOWEN
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		L	M W F	1	RITTER
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	8	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
		L	M W F	3	CREPEAU
		R	T	8	
		R	T	10	
		R	T	2	
		R	T	3	
		R	T	9	
		R	T	10	
		R	T	2	
		R	T	3	
201	5	D	MTWTF	1	BROOKS
205.A	1	B	T T	8	KNOWER
205.B	1	B		ARR	LAWSON
205.C	1	B	T	3 - 5	SCHOEN
205.D	1	B	T	1 - 3	
		B	T	4	
209	3	D	M W F	10	KNOWER
213	5	D	MTWTF	9	RAGSDALE
217	5	D	MTWTF	10	RAGSDALE
221	5	DR	MTWTF	9	SCHOEN
		DR	MTWTF	10	BROOKS
225	5	D	MTWTF	3	FOTHERINGHAM
229	3	DRB	M W F	1	LYNCH
		DRB	M W F	2	LYNCH
235	3	L	T T	2	SCHLANGER
		R	M	8	SCHLANGER
		R	M	4	SCHLANGER
		R	T	3	SCHLANGER
		R	W	3	SCHLANGER
		R	T	3	SCHLANGER
		R	F	4	SCHLANGER
		R	T	3	LEWIS
240	3	L	M W F	1	STROMSTA
245	3	L	M W F	2	SINGH
250	3	L	M W F	12	GOFF
265	1	B		ARR	CREPEAU
270	5	L	MTWT	9	EMERY
		B		63 HR ARR	EMERY
280	3	DRB	M W	11 - 1	AYERS
		DRB	M W	11 - 1	GLANCY
		DRB	M W	3 - 5	RITTER
305	5	DR	MTWTF	9	RIEKE
315	3	D	M W F	8	BAKER
325	3	D	M W F	9	MALL
365	5	DRB	T T	9 -11	GLANCY
		DRB	F	1 - 3	
410	4	DRB	M W F	4	RILEY
465	5	DRB	MTW	10	CREPEAU
		DRB	F	9 -11	CREPEAU

510	5	DRB	M W	3 - 5	
		DRB	F	3	
565	5	DRB	MTWTF	9	LEWIS
621	5	D	MTWTF	9	GOLDEN
626	5	DB	MTWT	8	MONAGHAN
632	3	L	M W F	8	
		B		ARR	
636	3	L	M W F	6	P BRANNON
640	5	L	MTWTF	2	MOSER
656	5	K	MTWTF	9	IRWIN
672	3	L	M W F	11	MORROW
693	1-05	C		ARR	
705	3	D	M W F	12	GOLDEN
735	3	L	M W F	11	STROMSTA
745	3	L	T	7 - 930P	
755.A	3	K	MTWTF	12	MOSER
		K	T T	2 - 4	
755.B	3	K	MTWTF	12	MOSER
		K		64 HR ARR	
755.C	3	K	MTWTF	12	MOSER
		K		64 HR ARR	
780	3	DRB	T T	11 - 1	BOWEN
783	3-15	C		ARR	
794	3-05	C		ARR	
801	3	D	M W F	3	LYNCH
806	3-05	D	M W F	4	LYNCH
811.B	3-05	S	M W	3 - 5	RIEKE
816.B	3-05	S	T T	3 - 5	GOLDEN
821.C	3-05	S	M W	9 -11	RILEY
821.D	3-05	S	T T	9 -11	MALL
826.B	3-05	S	M W	1 - 3	KNOWER
844.A	3-15	K		ARR	MOSER
844.B	3-15	K		ARR	MOSER
		K		ARR	MOSER
848	3	L	T T	3 - 5	SCHLANGER
856	5	L	MTWTF	10	BLACK
880.C	3-05	D	M W	3 - 5	MORROW
880.D	3-05	D	T T	3 - 5	CREPEAU
894	3-05	D		ARR	
899	3-05	S	M W	7 - 9 P	LYNCH
940.C	3-05	S	M W F	3	STROMSTA
950.D	1-05	S	M	4 - 6	BRANNON
950.E	2	S	F	4 - 530	IRWIN
970.C	2-05	S	M W	1 - 3	BOWEN
970.D	2-05	S	T T	1 - 3	RITTER
999		C		ARR	

SPRING QUARTER

35	5	B	MTWTF	9	GOFF
40.A	0+03	B	MTWTF	12	GOFF
40.B	0+03	B	MTWTF	12	IRWIN



4n.C	0.03 B	MTWTF	12	STROMSTA
4n.D	0.03 B	MTWTF	12	
4n.E	0.03 B	T T	7 - 930P	GOFF
105	5	DR MTWTF	8	BROOKS BAKER
		DR MTWTF	9	BROOKS BAKER
		DR MTWTF	10	BROOKS BAKER
		DR MTWTF	12	BROOKS BAKER
		DR MTWTF	1	BROOKS BAKER
		DR MTWTF	2	BROOKS BAKER
		DR MTWTF	3	BROOKS BAKER
		DR MTWTF	4	BROOKS BAKER
		DR MTWTF	7 - 930P	BROOKS BAKER
11n	5	DR MTWTF	8	RAGSDALE
		DR MTWTF	9	RAGSDALE
		DR MTWTF	10	RAGSDALE
		DR MTWTF	1	RAGSDALE
		DR MTWTF	2	RAGSDALE
		DR M W	7 - 930P	RAGSDALE
115	3	D M W F	2	
12n	3	DR M W F	9	RILEY
		DR M W F	10	RILEY
		DR M W F	12	RILEY
125	3	D M W F	8	LAWSON
135	3	LB M W F	10	IRWIN
		LB M W F	12	BLACK
		LB M W F	1	
		LB M W F	2	GOFF
		LB M W F	4	2
165	5	L M W F	10	RITTER
		R T	8	
		R T	9	
		R T	10	
		R T	2	
		R T	3	
		R T	8	
		R T	9	
		R T	10	
		R T	2	
		R T	3	
		L M W F	1	CREPEAU
		R T	8	
		R T	9	
		R T	10	
		R T	2	
		R T	3	
		R T	8	
		R T	9	
		R T	10	
		R T	2	
		R T	3	
		L M W F	3	GLANCY
		R T	8	
		R T	10	
		R T	2	
		R T	3	
		R T	9	
		R T	10	
		R T	2	
		R T	3	
201	5	D MTWTF	1	BROOKS
205.A	1	B T T	8	KNOWER
205.B	1	B	ARR	LAWSON
205.C	1	B T	3 - 5	SCHOEN
205.D	1	B T	1 - 3	
		B T	3	
209	3	D M W F	10	MONAGHAN
213	5	D MTWTF	9	GOLDEN
217	5	D MTWTF	10	RAGSDALE
221	5	DR MTWTF	9	SCHOEN
225	5	D MTWTF	2	FOTHERINGHAM
229	3	DRB M W F	1	LYNCH
		DRB M W F	2	LYNCH
235	3	L T T	2	SCHLANGER
		R M	8	SCHLANGER
		R M	4	SCHLANGER
		R W	3	SCHLANGER

		R	T	3		SCHLANGER
		R	F	4		SCHLANGER
24n	3	L	M W F	1		STROMSTA
245	3	L	M W F	1		SINGH
25n	5	L	M W F	2		GOFF
265	1	B		ARR		CREPEAU
27n	5	L B	MTWT	9 63 HR	ARR	EMERY
275	3	D	M W F	11		RITTER
28n	3	DRB DRB DRB	M W M W M W	11 - 1 11 - 1 3 - 5		AYERS GLANCY GLANCY
285	5	D	MTWTF	10		MORROW
305	5	DR	MTWTF	10		RIEKE
325	3	D	M W F	9		MALL
365	5	DRB DRB	M W F	9 - 11 1 - 3		GLANCY
42n	3	D	M W F	8		KNOWER
44n	5	L	MTWTF	3		STROMSTA
51A	5	DRB DRB	M W F	3 - 5 3		
515	3	DB	M W F	1		BROOKS
52n	3	D	M W F	8		MONAGHAN
525	4	DB	M W F	2		RILEY
54n	5	L	MTWTF	1		BRANNON
55n	3	L	M W F	11		
611	3	DRB	M W F	10		BROOKS
616	5	DR	MTWTF	12		RIEKE
621	5	D	MTWTF	10		GOLDEN
626	5	DB	MTWT	8		MALL
632	3	L	M W F	10		
636	3	L	M W F	8		BRANNON
652	5	L	MTWTF	9		IRWIN
673	3	L	M W F	11		MCDOWELL
693	1-05	C		ARR		
715	3	D	M W F	4		MALL
725	3	DRB D	T T W	3 7	- 10 P	LYNCH
755.A	3	K K	MTWTF T T	12 2	- 4	
755.B	3	K K	MTWTF	12 4 HR	ARR	
755.C	3	K K	MTWTF	12 4 HR	ARR	
783	3-15	C		ARR		
794	3-05	C		ARR		
811.C	3-05	S	M W	3 - 5		GOLDEN
816.C	3-05	S	T T	3 - 5		RAGSDALE
821.E	3-05	S	M W	9 - 11		LYNCH
821.F	3-05	S	T T	9 - 20		MALL
826.C	3-05	S	M W	1 - 3		MONAGHAN
832	5	LB LB	T T S	4 - 530 8 - 12		BLACK
84n	3	L	T	7 - 930P		
844.A	3-15	K		ARR		

Speech    (Cont'd)

844.B	3-15	K		ARR	
844.C	3-15	K		ARR	
865	5	DRB DRB	T T W	11 - 1 1 - 3	BOWEN
875	5	L L	M W F	1 - 3 1	MCDOWELL
88A.E	3-05	D	M W	3 - 5	RITTER
88A.F	3-05	D	T T	3 - 5	CREPEAU
894	3-05	D		ARR	
899	3-05	S	M W	7 - 9 P	BAKER
94A.D	3-05	S	M W	4 - 6	IRWIN
94A.F	3-05	S		F 4 - 6	BRANNON
95A.F	1-05	S	T T	3	SCHLANGER
97A.E	2-05	S	M W	1 - 3	MORROW
97A.F	2-05	S	T T	1 - 3	RITTER
999		C		ARR	

Surgery

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
715	6+12	LK		ARR	THOMFORD
736	6+12	K		ARR	BERGGREN
76A	18			ARR	
793	6+12	K		ARR	ZOLLINGER
793	18	K		ARR	
794	6+12	K		ARR	ZOLLINGER
794	18	K		ARR	
798	18	K		ARR	PACE
799	18	K		ARR	MARABLE
85A	3+05	S		ARR	ZOLLINGER
999		B		ARR	JESSEPH

WINTER QUARTER

715	6+12	LK		ARR	THOMFORD
736	6+12	K		ARR	BERGGREN
76A	18			ARR	
793	6+12	K		ARR	ZOLLINGER
793	18	K		ARR	
794	6+12	K		ARR	ZOLLINGER
794	18	K		ARR	
798	18	K		ARR	PACE
799	18	K		ARR	MARABLE
85A	3+05	S		ARR	ZOLLINGER
999		B		ARR	JESSEPH

SPRING QUARTER

715	6+12	LK		ARR	THOMFORD
736	6+12	K		ARR	BERGGREN
76A	18			ARR	
793	6+12	K		ARR	ZOLLINGER
793	18	K		ARR	
794	6+12	K		ARR	ZOLLINGER
794	18	K		ARR	
798	18	K		ARR	PACE
799	18	K		ARR	MARABLE
85A	3+05	S		ARR	ZOLLINGER
999		B		ARR	JESSEPH

Survey Courses in Agriculture

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	1	D	T	9	RITCHIE
		D 6	T	12	BESSESEN
		D	T	3	ARCHER
		D	W	8	WALISER
		D	W	11	ARCHER
		D	W	4	WALISER
		D 1	M	7 - 9 P	RITCHIE
351	1	D	M	4	BADER

WINTER QUARTER

101	1	D	W	3	WALISER
351	1	D	W	2	BADER
		D	W	4	BADER
59A	2	D	W	4 - 6	RITCHIE

SPRING QUARTER

101	1	D	W	3	WALISER
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Survey Courses in Arts and Sciences

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
1		D	T	9	
		D	T	11	
		D	T	1	
		D	T	3	
		D	T	1	
		D	T	3	
75A		D		ARR	

## WINTER QUARTER

1	D	T	11	
	D	T	4	
75n			ARR	

## SPRING QUARTER

1	D	T	11	
608	5	L	MTWTF	11 LAROCQUE
75n			ARR	

## Survey Courses in Commerce

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

1	L	M	2	
	L	T	10	
	L	T	2	
	L	W	2	
	L	T	10	
	L	T	2	
101	3	S	M W F	10
301	2-05	S		ARR

## WINTER QUARTER

1	L	T	10	
	L	T	10	
101	3	S	M W F	10
301	2-05	S		ARR

## SPRING QUARTER

101	3	S	M W F	10
301	2-05	S		ARR

## Survey Courses in Engineering

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101	1	L	T	9 -10	YARRINGTON
		L	T	11 -12	YARRINGTON

## SPRING QUARTER

102	1	L	T	2 -3	YARRINGTON
		L	T	11 -12	

## Survey Course in the Graduate School

No. Crd't. Sec. Day Time Instructor

## WINTER QUARTER

801	2	D	T T	4	P AUSTIN
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## SPRING QUARTER

801	2	D	T T	4	P AUSTIN
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## Veterinary Anatomy

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

10n	5	L	MTWTF	1	VENZKE
41n	7	L	MTWT	8	DIESEM
		B	M W	10 -12	
		B	T T	9 -11	
42n	4	L	T T	11	ANDRES
		L	F	10	
		B	M W	1 -3	
		B	M W	3 -5	

601	3+05	L		ARR	VENZKE
693	2-05			ARR	
801	2-05			ARR	
999	I			ARR	

## WINTER QUARTER

411	7	L	M W	8	DIESEM
		L	T T	1	
		B	M W	9 -11	
		B	T T	2 -4	
43n	4	L	M W	11	LATSHAW
		L	F	10	
		B	M W	1 -3	
		B	M W	3 -5	

601	3+05	L		ARR	VENZKE
693	2-05			ARR	
70n	3			ARR	
801	2-05			ARR	
999	I			ARR	

## SPRING QUARTER

431	4	L	M	11	ANDRES
		L	W F	10	
		B	M W	1 -3	
		B	M W	3 -5	
51n	5	L	T	1	DIESEM
		L	F	8	
		B	T	1 -3	
		B	T	2 -4	
		B	F	9 -11	

601	3+05	L		ARR	VENZKE
693	2-05			ARR	
81n	3+05			ARR	DIESEM
999	I			ARR	



## Veterinary Clinics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

51n	3	LB	MTWTF	9 - 11	
512	15	LB	MTWTF		

### WINTER QUARTER

51n	3	LB	MTWTF	9 - 11	
512	15	LB	MTWTF		

### SPRING QUARTER

51n	3	LB	MTWTF	9 - 11	
512	15	LB	MTWTF		

## Veterinary Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

52n	3	L	M T	2	
		L		11	
53n	4	L	MTWT	1	
532	4	L	MTWT	8	
61n	3	LB		ARR	
62n	5	LB		ARR	
693	2-08	LB		ARR	
72n	3-05	LB		ARR	
999		I		ARR	

### WINTER QUARTER

521	3	L	T T	2	
		L	F	11	
531	3	L	MTW	8	
60n	3	L	T	7 - 9 P	
61n	3	LB		ARR	
621	5	LB		ARR	
693	2-08	LB		ARR	
721	3-05	LB		ARR	
999		I		ARR	

### SPRING QUARTER

51n	2	L	F	11	
		B	F	1 - 3	
		B	F	3 - 5	
522	3	L	M T	2	
		L	T	11	
54n	5	L	MTWT	8	

60n	3	L	T	7 - 9	
61n	3	LB		ARR	
693	2-08	LB		ARR	
999		I		ARR	

## Veterinary Parasitology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

411	3	L	M W F	11	KOUTZ GROVES
		B	WT	2 - 4	
61n	2-05	L		ARR	KOUTZ GROVES
		B		ARR	
693	2-08	L		ARR	KOUTZ GROVES
		B		ARR	
85n	1	S	T	2 - 4	
999		I		ARR	

### WINTER QUARTER

412	3	L	MTW	11	KOUTZ GROVES
		B	WT	2 - 4	
61n	2-05	L		ARR	KOUTZ GROVES
		B		ARR	
693	2-08	L		ARR	KOUTZ GROVES
		B		ARR	
827	1	S		ARR	
999		I		ARR	

### SPRING QUARTER

41n	4	L	TWTF	11	KOUTZ
		B	T	1 - 3	GROVES
		B	T	3 - 5	
61n	2-05	L		ARR	KOUTZ GROVES
		B		ARR	
693	2-08	L		ARR	KOUTZ GROVES
		B		ARR	
85n	1	BS	T T	ARR	COLE, FOWLER
999		I		ARR	

## Veterinary Pathology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

51n	6	BDR	MT TF	9 - 11	CAPEN
625	2-10	LB	M W F	ARR	FARRELL
693	1-10	BD	TWTF	ARR	CAPEN COLE
71n	2-10	BD	TWTF	ARR	FARRELL LOEB
72n	2-10	BD	M WTF	ARR	GRIESEMER

85n	1	BS	T T	ARR	COLE FOWLER
999		I	MTWTF	ARR	CAPEN COLE

#### WINTER QUARTER

511	6	BDR	MTWT	9 -11	SHADDUCK
61n	3	BDR	M W F	2	MARSH
625	2-10	LB	M W F	ARR	FARRELL
693	1-10	BD	T TFS	ARR	CAPEN COLE
71n	2-10	BD	TWTF	ARR	GRIESEMER
999		I	MTWTFS	ARR	CAPEN COLE

#### SPRING QUARTER

512	6	BDR	MTWT	9 -11	FOWLER, LOEB
625	2-10	LB	M W F	ARR	FARRELL
693	1-10	BD	T TFS	ARR	CAPEN, COLE
71n	2-10	BD	TWTF	ARR	ROMOVSKY
715	2-10	BD	MTW F	ARR	LONG, FARRELL
999		I	MTWTFS	ARR	CAPEN, COLE

## Veterinary Physiology and Pharmacology

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

21n	5	L	MT TF	11	RAY
21n		B	T	2 - 4	
531	5	L B B	MTWT M T	1 2 - 5 2 - 5	POWERS
63n	5	L	MT TF W	8 10	REDDING REDDING
693	3-15			ARR	
79n	3	L		ARR	SMITH HAMLIN
799	2	S		ARR	
999		I		ARR	

#### WINTER QUARTER

211	5	L B	MT TF T	11 9 -11	
532	5	L B B	MTWT M T	8 2 - 5 2 - 5	RAY POWERS
632	4	L	MTWT	1	POWERS RAY
693	3-15			ARR	
791	3	L		ARR	SMITH HAMLIN
799	2	S		ARR	
999		I		ARR	

#### SPRING QUARTER

53n	5	L B B	TWTF M T	9 8 -11 1 - 4	REDDING
693	3-15			ARR	
78n	5	C		ARR	POWERS
792	3	L		ARR	SMITH HAMLIN
799	2	S		ARR	
999		I		ARR	

## Veterinary Preventive Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

20n	3	L	M W F	8	HELWIG
51n	3	L L	MT T MT T	11 11	HELWIG JONES
61n	15	W		ARR	
693	2-05			ARR	
785	3			ARR	
81n	3-08	D		ARR	
85n	1			ARR	
999		I		ARR	

#### WINTER QUARTER

201	3	L	M W F	8	ROBINSON
511	3	L	MTW	3	HELWIG
61n	15	W		ARR	
616	5			ARR	
693	2-05			ARR	
785	3			ARR	
81n	3-08			ARR	
85n	1			ARR	

#### SPRING QUARTER

512	4	L D	M TWTF	3 2 - 5	
61n	15	W		ARR	
616	3-05			ARR	
693	2-05			ARR	
785	3			ARR	
85n	1			ARR	
999		I		ARR	

## Veterinary Surgery and Radiology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

52n	3	L	F	8	
		B	T	2 - 5	
532	1	B		ARR	
693	1-05			ARR	
999	1			ARR	

### WINTER QUARTER

53n	6	D	MTW	1	
		D	TFS	8	
532	1	B		ARR	
693	3-05	DB		ARR	RUDY
999	1			ARR	

### SPRING QUARTER

51n	5	L	MTWT	8	
		B	MW	1 - 3	
		B	MW	3 - 5	
531	6	D	MTWTF	1	
		D	S	8	
532	1			ARR	
693	3-05	DB		ARR	RUDY
999	1			ARR	

## Welding Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

24n	3	LB	MWF	8 - 10	FRIEDMAN
401	4	L	MWF	9	JACKSON
		B	T	8 - 11	
		B	T	1 - 4	
43n	4	L	MWF	1	MCMaster
		B	T	8 - 11	GOLIS
		B	T	1 - 4	GOLIS
489	6	W		ARR	GREEN
589	6	W		ARR	JACKSON
61n	4	L	MWF	11	MCCAULEY
		B	T	9 - 12	HUDEC
631	4	L	MWF	3	MCMaster
		B	T	1 - 4	
704	3	L	MWF	4	MCMaster
72n	4	L	MWF	10	GREEN
		B	T	1 - 4	
784	2-15			ARR	
784.A	3	LB		ARR	FUNK
784.B	3	LB		ARR	JACKSON
799	2-15			ARR	
884	2-06			ARR	
999	1			ARR	

### WINTER QUARTER

24n	3	LB	MWF	12 - 2	FRIEDMAN
		LB	MW	630- 930P	HUDEC
602	4	L	MWF	11	MCMaster
		B	T	9 - 12	GOLIS
611	5	L	MWTF	1	JACKSON
		B	T	9 - 12	FRIEDMAN
		B	T	2 - 5	FRIEDMAN
63n	3	L	MWF	2	MCMaster
64n	3	L	MWF	3	GREEN
68n	1	B	T	9 - 12	GOLIS
		B	T	9 - 12	GOLIS
721	4	L	MWF	9	GREEN
		B	T	1 - 4	
784	2-15			ARR	
784.C	3	L	MWF	4	MCCAULEY
784.D	3			ARR	FUNK
784.E	3			ARR	JACKSON
799	2-15			ARR	
884	2-06			ARR	
999	1			ARR	

### SPRING QUARTER

24n	3	LB	MWF	2 - 4	JACKSON
		LB	MW	630- 930P	FRIEDMAN
488	2	F		ARR	MCMaster
501	4	L	MWF	1	LIBBY
		B	T	2 - 5	
		B	T	2 - 5	
588	2	F		ARR	MCMaster
612	4	L	MWF	9	MCCAULEY
		B	T	1 - 4	
		B	W	3 - 6	
705	3	L	MWF	11	MCMaster
722	4	L	MWF	8	GREEN
		B	T	9 - 12	
		B	T	9 - 12	
755	1	B	T	1 - 3	MCMaster
784	2-15			ARR	
784.F	3	LB	MWF	4	MCMaster
784.G	3	LB	T	3 - 6	JACKSON
784.H	3	L	MWF	12	MCCAULEY
784.I	3	L		ARR	FUNK
799	2-15			ARR	
884	2-06			ARR	
999	1			ARR	

## Zoology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	L	TT	8	
		L	TT	9	



L T T 10  
 L T T 2  
 L T T 3  
 L T T 4  
 L T T 5  
 BR M W F 8  
 BR M W F 9  
 BR M W F 10  
 BR M W F 11  
 BR M W F 12  
 BR M W F 1  
 BR M W F 2  
 BR M W F 3  
 BR M W F 4  
 BR M W F 5  
 B T T 8  
 R M T 8  
 B T T 9  
 R M T 9  
 B T T 10  
 R M T 10  
 B T T 11  
 R M T 11  
 B T T 12  
 R M T 12  
 B T T 1  
 R M T 1  
 B T T 2  
 R M T 2  
 B T T 3  
 R M T 3  
 B T T 4  
 R M T 4  
 B T T 5  
 R M T 5

62n 5 L M W F 8  
 B T T 8 -10  
 64n 5 L M W F 2  
 B M W 3 - 5  
 B T T 1 - 3  
 B T T 3 - 5  
 661 5 L M W F 3  
 B T T 3 - 5  
 693 2-05 ARR  
 694 2-05 ARR  
 88n 2 D T 7 - 9 P MYSER  
 881 1 ARR  
 897 1 ARR  
 999 1 ARR

PRICE  
 PRICE  
 PUTNAM  
 GOOD  
 MYSER  
 DAMBACH

WINTER QUARTER

101 5 L T T 8  
 L T T 9  
 L T T 10  
 L T T 2  
 BR M W F 8  
 BR M W F 9  
 BR M W F 10  
 BR M W F 11  
 BR M W F 12  
 BR M W F 1  
 BR M W F 2  
 BR M W F 3  
 BR M W F 4  
 BR M W F 5  
 211 5 L M W F 1  
 B T T 8 -10  
 B T T 10 -12  
 B T T 12 - 2  
 B T T 2 - 4  
 50n 5 D M T W F 10  
 61n 5 L T T 11  
 B M W F 8 -10  
 B M W F 10 -12  
 623 3 L M W 9  
 B F 8 -10  
 625 3 LB M W F 1 - 3  
 63n 5 L M W F 10  
 B T T 8 -10  
 B T T 10 -12

CRITES  
 TIDD  
 MILLER J N  
 PUTNAM  
 GOOD  
 PRICE

662 5 L M W F 3  
 B T T 3 - 5  
 693 2-05 ARR  
 694 2-05 ARR  
 851 5 D M T W F 8  
 881 1 ARR  
 897 1 ARR  
 999 1 ARR

GOOD  
 PETERLE  
 DAMBACH

SPRING QUARTER

101 5 L T T 8  
 L T T 9  
 L T T 10  
 L T T 2  
 BR M W F 8  
 BR M W F 9  
 BR M W F 10  
 BR M W F 11  
 BR M W F 12  
 BR M W F 1  
 BR M W F 2  
 BR M W F 3  
 BR M W F 4  
 BR M W F 5  
 B T T 8  
 R M T 8  
 B T T 9  
 R M T 9  
 B T T 10  
 R M T 10  
 B T T 11  
 R M T 11  
 B T T 12  
 R M T 12  
 B T T 1  
 R M T 1  
 B T T 2  
 R M T 2  
 B T T 3  
 R M T 3  
 B T T 4  
 R M T 4  
 B T T 5  
 R M T 5  
 B M W 8  
 R M T 8  
 B M W 9  
 R M T 9  
 B M W 10  
 R M T 10  
 B M W 11  
 R M T 11  
 B M W 12  
 R M T 12  
 B M W 1  
 R M T 1  
 B M W 2  
 R M T 2  
 B M W 3  
 R M T 3  
 B M W 4  
 R M T 4  
 B M W 5  
 R M T 5

HAUB  
 HAUB  
 HAUB  
 HAUB

22n 5 L T T 8  
 B M 8 -10  
 B W 8 -10  
 61n 5 L T T 11  
 B M W F 8 -10  
 B M W F 10 -12  
 62n 5 L M W F 3  
 B T T 8 -10  
 65n 5 L T W T 10  
 B M F 8 -10  
 B M F 10 -12  
 66n 5 L M W F 2  
 B M F 3 - 5  
 693 2-05 ARR  
 694 2-05 ARR  
 812 5 L M W F 1  
 B T T 12 - 2

REESE  
 MILLER  
 PRICE  
 STANSBERRY  
 MOMOT  
 CRITES

**Zoology (Cont'd)**

841	3	L	M	2		BORROR
		B	T	2	- 4	

881	1	ARR
896	1-03	ARR
897	1	ARR
999		ARR

**LIMA CAMPUS****Accounting**

No.	Crd't.	Sec.	Day	Time	Instructor
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**WINTER QUARTER**

211	5	LD	T T	5 - 730P	
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**SPRING QUARTER**

212	5	L	T T	5 - 730P	
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**Agricultural Education**

No.	Crd't.	Sec.	Day	Time	Instructor
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**SPRING QUARTER**

200	3	L	T T	2 - 430	
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**Animal Science**

No.	Crd't.	Sec.	Day	Time	Instructor
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**WINTER QUARTER**

100	5	L	T T	1230- 3	
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**Anthropology**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

261	5	D	M W	5 - 730P	
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**WINTER QUARTER**

251	5	LD	M W	5 - 730P	
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**SPRING QUARTER**

210	5	L	M W	5 - 730P	
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**Biology**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

102	5	D	MTWTF	9	
		D	MTWTF	10	
		D	MTWTF	11	
		D	MTWTF	3	
		D	MTWTF	4	
		D	M W	5 - 730P	
		D	MTWTF	12	

**WINTER QUARTER**

102	5	LD	MTWTF	4	
		LD	MTWTF	10	
		LD	M W	5 - 730P	

**SPRING QUARTER**

102	5	LD	MTWTF	9	
		LD	MTWTF	10	

		LD	M W	5	- 730P	
130	5	L	MTWTF	3		
410	5	L	MTWTF	4		
630	5	L	MTWTF	3		

## Botany

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

102	5	D	MTWTF	2	- 3
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### WINTER QUARTER

101	5	LD	MTWTF	11	
102	5	LD	MTWTF	3	

### SPRING QUARTER

102	5	LD	MTWTF	11	
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## Business Organization

No.	Crd't.	Sec.	Day	Time	Instructor
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### WINTER QUARTER

620	4	LD		ARR	
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### SPRING QUARTER

650	4	LD		ARR	
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## Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	L R B	M W F T W	11 11 1	- 4	ROTHEMUND ROTHEMUND ROTHEMUND
121	5	L R B R B R B	M W F T F T F T	4 3 2 4 1 4 4	- 5 - 4 - 7 P	SALMON SALMON ROTHEMUND ROTHEMUND ROTHEMUND SALMON SALMON

### WINTER QUARTER

102	5	L R B	M W F T W	11 11 1	- 4	ROTHEMUND ROTHEMUND ROTHEMUND
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122	5	L R B R B R B	M W F T F T F T	4 3 2 - 5 4 1 - 4 5 - 7 P	SALMON SALMON SALMON SALMON SALMON SALMON SALMON	
241	3	L	M W F	9		ROTHEMUND

### SPRING QUARTER

123	5	L B B	M W F T T T T	4 2 - 5 5 - 8 P	SALMON SALMON SALMON	
242	3	L	M W F	9		ROTHEMUND
243	3	B	M W F	1	- 4	ROTHEMUND

## Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

201	5	D	M W	7	- 930P
442	5	D		ARR	

### WINTER QUARTER

402	5	LD	M W	5	- 730P
520	4	LD	T T	5	- 730P

### SPRING QUARTER

530	4	LD	M W F	ARR	
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## Education

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

108	3	D	M W F	10	
467	3	D	M W F	2	
502	3	D	T	5	- 730P
507	3	D	M W F	1	P
585.10	6-15	I		ARR	

### WINTER QUARTER

108	3	L	M W F	10	
460	4	LD	M W F	1	
461	3	LD	M W F	12	
585.10	6-15	I		ARR	



**Education (Cont'd)****SPRING QUARTER**

108	3	LD	M W F	10	
508	4	LD	M W F	12	
511	4	L	W	5	- 730P
585+10	6-15	L	ARR		

**Engineering Graphics**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

111	3	LB	M W F	2	- 4
		LB	M W F	7	- 930P

**WINTER QUARTER**

111	3	L	M W F	8	-10
112	3	L	M W F	2	- 4

**SPRING QUARTER**

112	3	LD	M W F	2	- 4
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**Engineering Mechanics**

No.	Crd't.	Sec.	Day	Time	Instructor
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**SPRING QUARTER**

210	5	D	MTWTF	10	
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**English**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

101	3	D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W	5	- 630P
		D	M W	7	- 830P
		D	T T	9	-1030
		D	T T	11	-1230
		D	T T	1	- 230
		D	T T	3	- 430
		D	T T	5	- 630P
		D	T T	7	- 830P

102	3	D	M W F	10	
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103	3	D	M W F	2	
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220	5	D	MTWTF	10	
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240	5	D	MTWTF	3	
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290	5	D	MTWTF	2	
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301	5	D	MTWTF	9	
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**WINTER QUARTER**

101	3	LD	M W F	9	
		LD	M W F	11	
		LD	M W F	1	
		LD	M W F	730-	830P

102	3	LD	M W F	9	
		LD	M W F	10	
		LD	M W F	11	
		LD	M W F	1	
		LD	M W F	2	
		LD	M W F	3	
		LD	M W F	4	
		LD	T T	9	-1030
		LD	T T	11	-1230
		LD	T T	1	- 230
		LD	T T	3	- 430
		LD	T T	7	- 830P

103	3	LD	M W F	3	
		LD	M W F	5	P
		LD	M W F	7	- 830P

261	5	LD	MTWTF	3	
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293	5	LD	MTWTF	5	P
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**SPRING QUARTER**

101	3	LD	MTWTF	10	
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102	3	LD	MTWTF	11	
		LD	MTWTF	2	

103	3	LD	MTWTF	9	
		LD	MTWTF	10	
		LD	MTWTF	11	
		LD	MTWTF	1	
		LD	MTWTF	2	
		LD	MTWTF	3	
		LD	T T	9	-1030
		LD	T T	11	-1230
		LD	T T	1	- 230
		LD	T T	3	- 430
		LD	T T	7	- 830P
		LD	MTWTF	4	
		LD	M W	5	- 730P

220	5	LD	MTWTF	10	
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240	5	LD	MTWTF	3	
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260	5	LD	MTWTF	5	P
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294	5	LD	MTWTF	2	
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**Fine Arts**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

111	3	L	M W F	2	STEWART
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190	3	B	M F	10 -12	NEISE
		B	W	10	

290	5	B	MTWTF	3 - 5	STEWART
		B	MTWTF	1 - 3	NEISE

**WINTER QUARTER**

111	3	L	M W F	2	STEWART
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190	3	8	M F	10 -12	NEISE
		8	W	10	
290	5	8	MTWTF	3 - 5	STEWART
296	3	8	M W F	1 - 3	NEISE

## SPRING QUARTER

111	3	L	M W F	2	STEWART
170	5	8	MTWTF	10 -12	NEISE
190	3	8	M T	3 - 5	STEWART
		8	W	3	
270	3	8	M W F	1 - 3	NEISE

## French

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWTF	4	
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## WINTER QUARTER

102	5	LD	MTWTF	4	
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## SPRING QUARTER

103	5	LD	MTWTF	4	
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## Geography

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

220	5	L	MTWTF	3	
		L	M W	5 - 730P	
240	5	L	MTWTF	2	

## WINTER QUARTER

220	5	LD	MTWTF	2	
240	5	LD	MTWTF	3	
		LD	T T	5 - 730P	

## SPRING QUARTER

220	5	LD	MTWTF	2	
		LD	M W	5 - 730P	
240	5	LD	MTWTF	3	

## Geology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LB	MTWTF	9	
		LB	MTWTF	1	

## WINTER QUARTER

100	5	LD	MTWTF	1	
101	5	LD	MTWTF	4	

## SPRING QUARTER

100	5	LD	MTWTF	1	
102	5	LD	MTWTF	4	

## German

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	R	M W	5 - 730P	
104	5	R	M W	730-10 P	

## WINTER QUARTER

102	5	R	M W	5 - 730P	
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## SPRING QUARTER

103	5	R	M W	5 - 730P	
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## Health Education

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

300	3	L	T T	6 - 730P	
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## SPRING QUARTER

103	3	L	T T	6 - 730P	
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## History

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

103	5	LD	MTWTF	10	
		LD	MTWTF	1	

History (Cont'd)

121	5	L	MTWTF	9	
		L	MTWTF	11	
		L	MTWTF	3	
		L	MTWTF	4	
		L	M W	730-10	

WINTER QUARTER

104	5	LD	MTWTF	11	
		LD	MTWTF	2	
122	5	LD	MTWTF	9	
		LD	MTWTF	11	
		LD	MTWTF	3	
		LD	M W	730-10	P
213	3	LD	M W F	1	
232	3	LD	M W F	9	

SPRING QUARTER

103	5	L	MTWTF	11	
123	5	LD	MTWTF	9	
		LD	MTWTF	2	
		LD	M W	730-10	P
		L 1	T T	3 - 5	
211	3	L	M W F	11	
233	3	L	M W F	9	

Mathematics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101	5	LD	MTWTF	11	
		LD	MTWT	6	P
116	5	LD	MTWTF	10	
121	5	LD	MTWTF	1	
150	5	LD	MTWTF	9	
123	5	LD	MTWTF	2	
150	5	LD	MTWT	6	P
151	5	LD	MTWTF	9	
153	5	LD	MTWTF	11	

WINTER QUARTER

105	3	L	M W F	4	
116	5	L	MTWTF	2	
117	5	L	MTWTF	10	
122	5	L 1	MTWTF	1	
121	5	L 1	MTWTF	2	
150	5	L	MTWTF	3	
151	5	L	MTWTF	9	
		L	MTWTF	6	P
152	5	L	MTWTF	9	
254	5	L	MTWTF	11	

SPRING QUARTER

101	5	L	MTWTF	11	
117	5	L	MTWTF	2	
122	5	L	MTWTF	2	
123	5	L	MTWTF	1	
151	5	L	MTWTF	3	
152	5	L	MTWTF	9	
		L	MTWT	5	P
153	5	L	MTWTF	9	
255	5	L	MTWTF	11	

Music

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

141	3	D	M W F	3	
		D	M W	5 - 630P	
142	3	L	M W F	1	
191	1	I	T T	5 - 630P	
		I	ARR		
199	1	I	M W	5 - 630P	
		I	ARR		
270	3	DB	MTWTF	2	

WINTER QUARTER

141	3	D	M W F	10	
		D	M W	5 - 630P	
143	3	L	M W F	1	
191	1	I		ARR	
199	1	I	M W	5 - 630P	
		I	ARR		
370	3	DB	MTWTF	3	

SPRING QUARTER

141	3	D	M W F	11	
		D	M W F	1	
143	3	L	M W F	2	
191	1	I	T T	5 - 630P	
		I	ARR		
199	1	I	M W	5 - 630P	
		I	ARR		
271	2	D	MTW F	3	

Philosophy

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101	5	LD	T T	2 - 430	
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## WINTER QUARTER

No.	Crd't.	Sec.	Day	Time	Instructor
101	5	L	T T	1 - 330	

## SPRING QUARTER

101	5	L	T T	2 - 430	
130	5	L	T T	5 - 730P	

## Physical Education

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

323	3	L	T T	6 - 730P	
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## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

111	5	L	MTWTF	2 ARR	
231	5	L	MTWTF	5 ARR	P

## WINTER QUARTER

112	5	LD	MTWTF	3	
232	5	LD	MTWTF	5	P

## SPRING QUARTER

113	5	LD	MTWTF	3	
233	5	LD	MTWTF	5	P

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LD	MTWTF	3	
		LD	MTWTF	5	P

## WINTER QUARTER

225	5	LD	MTWTF	3	
265	5	LD	MTWTF	5	P

## SPRING QUARTER

100	5	L	MTWTF	5	P
205	5	L	MTWTF	3	

## Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LD	MTWTF	11	
		LD	MTWTF	2	
		LD	MTWTF	4	
		LD	T T	7 - 930P	

## WINTER QUARTER

100	5	LD	MTWTF	1	
		LD	MTWTF	3	
101	5	LD	MTWTF	4	
		LD	M W	7 - 930P	

## SPRING QUARTER

100	5	LD	MTWTF	3	
230	5	LD	MTWTF	9	
		LD	MTWTF	11	
		LD	M W	5 - 730P	

## Rural Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

105	5	LD	M W	2 - 430	
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## Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	LD	MTWTF	11	
		LD	MTWTF	2	
		LD	MTWTF	4	
		LD	T T	7 - 930P	

## WINTER QUARTER

101	5	LD	MTWTF	11	
202	5	LD	MTWTF	1	
		LD	MTWTF	3	
		LD	T T	7 - 930P	

## SPRING QUARTER

101	5	LD	MTWTF	9	
220	5	LD	MTWTF	11	
		LD	MTWTF	1	
		LD	MTWTF	3	

## Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	LD	MTWTF	10	
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### WINTER QUARTER

102	5	LD	MTWTF	10	
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### SPRING QUARTER

103	5	LR	MTWTF	10	
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## Speech

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

105	5	LD	MTWTF	1	
165	3	LD	MTWT	9	
235	3	LD	T T	3 - 430	

### WINTER QUARTER

110	5	LD	MTWTF	1	
		LD	MTWTF	3	

### SPRING QUARTER

105	5	LR	MTWTF	1	
165	5	LR	MTWT	3	

## Survey Courses in Agriculture

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	1	D	T	2 - 4	
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## Zoology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	LD	MTWTF	1	
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### WINTER QUARTER

101	5	LD	MTWTF	12	
		LD	MTWTF	1	
		LD	MTWTF	2	
		LD	T T	5 - 730P	

### SPRING QUARTER

101	5	L	MTWTF	12	
		L	MTWTF	1	
		L	MTWTF	2	
		L	T T	5 - 730P	

## MANSFIELD CAMPUS

## Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
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### WINTER QUARTER

211	5	L	T T	5 - 730P	
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### SPRING QUARTER

212	5	L	T T	5 - 730P	
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## Agricultural Economics

No.	Crd't.	Sec.	Day	Time	Instructor
SPRING QUARTER					
100	5	L	T T	2 - 430	

## Animal Science

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
100	5	L	T T	1230- 3	

## Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
261	5	L	M W	5 - 730P	
WINTER QUARTER					
251	5	L	M W	730-10 P	
SPRING QUARTER					
210	5	L	M W	5 - 730P	

## Biology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
102	5	LB	MTWTF	9	
		LB	MTWTF	10	
		LB	MTWTF	12	
		LB	MTWTF	1	
		LB	MTWTF	2	
		LB	M W	5 - 730P	
		LB	T T	5 - 730P	
WINTER QUARTER					
102	5	LB	MTWTF	8	
		LB	MTWTF	10	
		LB	MTWTF	12	
		LB	MTWTF	5	P
SPRING QUARTER					
102	5	LB	MTWTF	8	
		LB	MTWTF	10	
		LB	MTWTF	12	
		LB	MTWTF	5	P
410	5	LB	T T	2 - 430	

## Botany

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
102	5	L	MTWTF	3	
WINTER QUARTER					
102	5	L	MTWTF	2	
		L	T T	5 - 730P	
SPRING QUARTER					
102	5	L	MTWTF	2	
		L	MTWTF	4	
		L	MTWTF	5	P

## Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTW	4	ZELLER
		R	F	4	ZELLER
		B	T	5 - 8 P	ZELLER
		R	F	3	ZELLER
		B	T	1 - 4	ZELLER
121	5	L	M W	10	SCHOLL
		R	F	10	SCHOLL
		B	T	9 -12	SCHOLL
		R	F	9	
		B	T	9 -12	
		R	F	2	
		B	T	2 - 5	
		L	T T	4	SCHOLL
		M	W	4	SCHOLL
		B	W	2 - 5	SCHOLL
WINTER QUARTER					
102	5	L	MTW	4	ZELLER
		R	F	4	ZELLER
		B	T	5 - 8 P	ZELLER
		R	F	3	ZELLER
		B	T	1 - 4	ZELLER
122	5	L	M W	10	SCHOLL
		R	F	10	SCHOLL
		B	T	9 -12	SCHOLL
		R	F	9	
		B	T	9 -12	
		R	F	2	SCHOLL
		B	T	2 - 5	SCHOLL
241	3	L	M W F	9	ZELLER
SPRING QUARTER					
123	5	L	M W F	4	
		B	T T	9 -12	
		B	T T	1 - 4	
242	3	L	M W F	9	
243	3	B	M W F	1 - 4	



## Comparative Literature and Language

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	3	L	MTW F	10	
		L	MW F	1	
		L	MW F	3	

### WINTER QUARTER

102	3	L	MW F	9	
		L	MW F	2	
		L	MW	6 - 730P	

### SPRING QUARTER

103	3	L	MW F	2	
		L	MW F	4	

## Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

201	5	L	MTWTF	11	
		L	MW	730-10 P	

### WINTER QUARTER

201	5	L	MTWTF	3	
402	5	L	MTWTF	11	
		L	MW	5 - 730P	

### SPRING QUARTER

402	5	L	MTWTF	1	
530	4	L		ARR	

## Education

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

408	3		MW F	1	
514	4		MW F	3	
515	4		MW F	4	
522	3		M	5 - 730	

### WINTER QUARTER

408	3		MW F	9	
510	3		M	4 - 630	
516	4		MW F	11	
517	4		MW F	12	
528	3		W	4 - 630	
535	5		T T	4 - 530	

### SPRING QUARTER

514	4		MW F	12	
515	4		MW F	1	
521	3		F	4 - 630	
632	4		MW	5 - 7	

## Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

111	3	L	MW F	9 -11	
		L	T T	8 -11	

### WINTER QUARTER

111	3	L	T T F	10 -12	
112	3	L	MW F	8 -10	

### SPRING QUARTER

112	3	L	MW F	9 -11	
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## Engineering Mechanics

No.	Crd't.	Sec.	Day	Time	Instructor
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### SPRING QUARTER

210	5	L	MTWTF	1	
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## English

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	3	L	MW F	9	
		L	MW F	10	
		L	MW F	11	
		L	MW F	2	
		L	MW F	3	
		L	MW F	4	
		L	MW	5 - 630P	
		L	MW	730- 9 P	
		L	T T	9 -1030	
		L	T T	11 -1230	
		L	T T	1 - 230	
		L	T T	3 - 430	
		L	T T	5 - 630P	
		L	T T	730- 9 P	
102	3	L	MW F	10 -11	
103	3	L	MW F	1	
220	5	L	T T	730-10 P	

240	5	L	MTWTF	3
290	5	L	MTWTF	11
		L	MTWTF	2
301	5	L	MTWTF	9

#### WINTER QUARTER

101	3	L	M W T	1
		L	T T	6 - 730P
102	3	L	M W F	8
		L	M W F	9
		L	M W F	10
		L	M W F	11
		L	M W F	12
		L	M W F	1
		L	M W F	2
		L	M W F	3
		L	M W F	4
		L	M W F	6 - 730P
		L	M W	730-9 P
		L	T T	8 - 930P
		L	T T	10 - 1130
		L	T T	1130-1
		L	T T	1 - 230
		L	T T	230-4
		L	T T	6 - 730P
		L	T T	730-9 P

103	3	L	M W F	10
261	5	L	MTWTF	11
		L	T T	730-10 P
291	5	L	MTWTF	2
		L	MTWTF	4

#### SPRING QUARTER

101	3	L	M W F	10
102	3	L	M W F	9
102		L	M W F	2
103	3	L	M W F	9
		L	M W F	10
		L	M W F	11
		L	M W F	1
		L	M W F	2
		L	M W F	3
		L	M W F	4
		L	M W	7 - 830P
		L	T T	9 - 1030
		L	T T	11 - 1230
		L	T T	1 - 230
		L	T T	3 - 4300
		L	T T	7 - 830

220	5	L	MTWTF	10
240	5	L	MTWTF	3
262	5	L	T T	730-10 P
294	5	L	MTWTF	11
		L	MTWTF	2
301	5	D	MTWTF	4

## Entomology

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

200	5	L	M W	2 - 430	
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## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

111	3	L	M W F	9	
290	5	B	MTWTF	10 - 12	

#### WINTER QUARTER

111	3	L	M W F	9	
190	3	L	MT T	10	
		B	T T	62 HR ARR	
		L	MT T	2	
		B	T T	62 HR ARR	

#### SPRING QUARTER

111	3	L	M W F	1	
290	5	B	MTWTF	2 - 4	

## French

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

101	5	L	MTWTF	1	
104	5	L	MTWTF	3	

#### WINTER QUARTER

102	5	L	MTWTF	3	
105	5	L	MTWTF	1	

#### SPRING QUARTER

103	5	L	MTWTF	1	
421	5	L	MTWTF	3	

## Geography

No.	Crd't.	Sec.	Day	Time	Instructor
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#### AUTUMN QUARTER

220	5	L	M W F	11	
		B	T T	10	
		B	T T	11	
		L	M W	5 - 730P	
		L	T T	730-10 P	
240	5	L	MTWTF	2	

#### WINTER QUARTER

220	5	L	M W F	10	
		B	T T	10	
		B	T T	11	

**Geography (Cont'd)**

240	5	L	MTWTF	2	
		L	T T	730-10	P
SPRING QUARTER					
220	5	L	M W F	2	
		B	T T	2	
		B	T T	3	
		L	M W	5	- 730P
240	5	L	MTWTF	10	

**Geology**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	L	MTWTF	9	
		L	MTWTF	1	

## WINTER QUARTER

100	5	L	MTWTF	11	
101	5	L	MTWT	2	
		B	F	2 - 4	

## SPRING QUARTER

100	5	L	MTWTF	1	
102	5	L	MTWTF	9	
		B	F	9 - 11	

**Health Education**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

300	3	L	M W F	4	
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**History**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

103	5	L	MTWTF	10	
		L	MTWTF	3	
		L	M W	730-10	P
121	5	L	MTWTF	9	
		L	MTWTF	2	
		L	MTWTF	4	

## WINTER QUARTER

103	5	L	MTWTF	11	
104	5	L	MTWTF	3	
		L	MTWTF	9	
122	5	L	MTWTF	10	
		L	MTWTF	2	
		L	MTWTF	4	
231	3	L	M W F	8	

## SPRING QUARTER

103	5	L	MTWTF	10	
104	5	L	MTWTF	3	
		L	M W	730-10	P
123	5	L	MTWTF	9	
123		L	MTWTF	1	
211	3	L	M W F	11	

**Mathematics**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWTF	11	
		L	MTWT	615- 715P	
116	5	L	MTWTF	9	
121	5	L	MTWTF	10	
123	5	L	MTWTF	1	
150	5	L	MTWTF	10	
		L	MTWT	5	P
151	5	L	MTWTF	9	
153	5	L	MTWTF	11	

## WINTER QUARTER

105	3	L	M W F	11	
116	5	L	MTWTF	1	
117	5	L	MTWTF	9	
121	5	L	MTWTF	1	
122	5	L	MTWTF	10	
150	5	L	MTWTF	2	
151	5	L	MTWTF	10	
		L	MTWT	5	P
152	5	L	MTWTF	9	
254	5	L	MTWTF	11	

## SPRING QUARTER

101	5	L	MTWTF	9	
117	5	L	MTWTF	1	
122	5	L	MTWTF	1	
123	5	L	MTWTF	2	
151	5	L	MTWTF	11	
152	5	L	MTWTF	10	
		L	MTWT	5	P



153	5	L	MTWTF	9
255	5	L	MTWTF	11

## Music

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

141	3	D	M W F	3	- 630P
		D	M W	5	
270	3	DB	MTWTF	2	

### WINTER QUARTER

142	3	L	M W F	1	
191	1	I	T T	4	
271	2	D	MTWT	3	

### SPRING QUARTER

141	3	D	M W F	11	
		D	M W F	3	
143	3	L	M W F	1	
191	1	I	T T	4	

## Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	L	MTWTF	9	
		L	MTWTF	2	

### WINTER QUARTER

101	5	L	MTWTF	9	
150	5	L	MTWTF	2	
		L	T T	5 - 730P	

### SPRING QUARTER

101	5	L	T T	2 - 430	
130	5	L	T T	5 - 730P	

## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

111	5	L	MTWT	8	ARR
		B			

231	5	L	MTWT	5	ARR
		B			

### WINTER QUARTER

112	5	L	MTWT	8	ARR
		B			
232	5	L	MTWT	5	ARR
		B			

### SPRING QUARTER

113	5	L	MTWT	3	ARR
		B			
233	5	L	MTWT	5	ARR
		B			

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

100	5	L	MTWTF	9	
		L	MTWTF	11	
		L	M W	5 - 730P	

### WINTER QUARTER

225	5	L	MTWTF	11	
265	5	L	M W	5 - 730P	

### SPRING QUARTER

100	5	L	MTWTF	9	
265	5	L	MTWTF	11	

## Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

100	5	L	MTWTF	8	
		L	MTWTF	9	
		L	MTWTF	11	
		L	M W	5 - 730P	
101	5	L	MTWTF	10	
230	5	L	MTWTF	3	

### WINTER QUARTER

100	5	L	MTWTF	8	
		L	MTWTF	10	
		L	MTWTFs	11	
101	5	L	M W	5 - 730	
230	5	L	MTWTF	3	
330	3	L	M W F	9	

**Psychology (Cont'd)**

## SPRING QUARTER

100	5	L	MTWTF	9
		L	MTWTF	10
101	5	L	MTWTF	10
		L	MTWTF	3
230	5	L	MTWTF	11
		L	M W	5 - 730

**Sociology**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWTF	9
		L	MTWTF	11
		L	MTWTF	3
		L	M W	5 - 730
		L	T T	730-10 P
207	3	L	M W F	1

## WINTER QUARTER

101	5	L	MTWTF	10
		L	T T	5 - 730P
202	5	L	MTWTF	9
		L	MTWTF	11
		L	T T	730-10 P
290	5	L	MTWTF	1

## SPRING QUARTER

101	5	L	MTWTF	11
		L	MTWTF	3
220	5	L	MTWTF	9
		L	MTWTF	1
		L	MTWTF	4
280	3	L	M W F	2

**Spanish**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWTF	2
		L	M W	5 - 730P

## WINTER QUARTER

102	5	L	MTWTF	4
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## SPRING QUARTER

103	5	L	MTWTF	4
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**Speech**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

105	5	L	MTWTF	1
165	3	L	M W F	3
		R	M	2
		R	W	2
		R	T	3
		R	T	3

## WINTER QUARTER

110	5	L	MTWTF	1
165	3	L	M W F	3
		R	M	2
		R	W	2
		R	T	3
		R	T	3
235	3	L	T T	5 - 630P

## SPRING QUARTER

105	5	L	MTWTF	1
165	3	L	M W F	3
		R	M	2
		R	W	2
		R	T	3
		R	T	3

**Survey Courses in Agriculture**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	1	L	F	2 - 4
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**Survey Courses in Commerce**

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

1		L	F	12
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**Zoology**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	LB	MTWTF	11
		LB	T T	5 - 730P

WINTER QUARTER

101	5	LB	MTWTF	9	
		LB	MTWTF	11	
		LB	MTWTF	2	
		LB	M W	5	- 730P

SPRING QUARTER

101	5	LB	MTWTF	8	
		LB	MTWTF	11	
		LB	M W	5	- 730P

MARION CAMPUS

Accounting

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

211 5 L T T 5 - 730

SPRING QUARTER

212 5 L T T 5 - 730

Anthropology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

261 5 L T T 730-10 P

WINTER QUARTER

251 5 D MTWTF 4

SPRING QUARTER

210 5 L MTWTF 4

Biology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

102 5 L M W 5 - 730  
L M W 730-10  
L T T 5 - 730  
L T T 730-10

WINTER QUARTER

102 5 L MTWTF 11  
L MTWTF 2

SPRING QUARTER

102 5 L MTWTF 11

Botany

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

102 5 L M W 730-10 P

SPRING QUARTER

102 5 L M W 730-10 P



## Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

121	5	L	T T	4 - 5	
		BR	T T	5 - 730	
		BR	T T	730-10 P	

### WINTER QUARTER

122	5	L	T T	4 - 5	
		BR	T T	5 - 730	

### SPRING QUARTER

123	5	L	T T	4 - 5	
		B	T T	5 - 830	

## Comparative Literature and Language

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	3	L	F	5 - 730	
		L	F	5 - 730	

### WINTER QUARTER

102	3	L	T	5 - 730	
		L	T	5 - 730	

### SPRING QUARTER

103	3	L	T	5 - 730	
		L	T	5 - 730	

## Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

201	5	L	M W	730-10 P	
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### WINTER QUARTER

402	5	L	M W	730-10 P	
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### SPRING QUARTER

108	3	L	W	5 - 730	
461	3	L	T	5 - 730	

## Education

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

108	3	L	T	5 - 730	
		L	T	730-10 P	
		L	T	5 - 730	

### WINTER QUARTER

435	5	L	T T	5 - 730	
460	4	L	T T	5 - 7	

## Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

111	3	L	M W	730-10 P	
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### WINTER QUARTER

112	3	L	M W	730-10 P	
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## English

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	3	L	M W F	4 - 5	
		L	M W	5 - 630	
		L	M W	730-9 P	
		L	T F	4 - 5	
		L	T T	5 - 630	
		L	T T	730-9 P	

103	3	L	T T	730-9 P	
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240	5	L	T T	5 - 730	
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290	5	L	M W	5 - 730	
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### WINTER QUARTER

101	3	L	M W	730-9 P	
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102	3	L	M W F	8	
		L	M W F	9	
		L	M W F	10	
		L	M W F	11	
		L	M W F	1	
		L	M W F	2	
		L	M W F	4	
		L	M W	5 - 630	

260	5	L	MTWTF	12	
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293	5	L	MTWTF	9	
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## SPRING QUARTER

102	3	L	M W	730- 9 P
103	3	L	M W F	8
		L	M W F	9
		L	M W F	10
		L	M W F	11
		L	M W F	1
		L	M W F	2
		L	M W F	4
		L	M W	5 - 630
261	5	L	MTWTF	12
294	5	L	MTWTF	9

## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

29n	3	B	M W T	6 - 9 P	
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## WINTER QUARTER

29n	5	B	M W T	600- 900P	
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## SPRING QUARTER

111	3	L	M W	630- 800P	
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## French

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	M W F	5 - 630	
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## WINTER QUARTER

102	5	L	M W F	5 - 630	
-----	---	---	-------	---------	--

## SPRING QUARTER

103	5	L	M W F	5 - 630	
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## Geography

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

22n	5	L	M W	730-10 P	
		L	T T	730-10 P	

## WINTER QUARTER

24n	5	L	MTWTF	8	
		L	MTWTF	10	

## SPRING QUARTER

22n	5	L	MTWTF	10	
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## Geology

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

10n	5	L	MTWTF	11	
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## SPRING QUARTER

101	5	L	MTWTF	11	
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## History

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

103	5	L	M W	5 - 730	
		L	T T	730-10 P	
121	5	L	M W	730-10 P	

## WINTER QUARTER

101	5	L	MTWTF	12	
104	5	L	MTWTF	2	
122	5	L	MTWTF	3	

## SPRING QUARTER \*

102	5	L	MTWTF	12	
104	5	L	MTWTF	2	
123	5	L	MTWTF	3	

## Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWTF	4 P	
		L	M W	5 - 730P	
116	5	L	M W	730-10 P	

**Mathematics (Cont'd)**

121	5	L	T T	5 - 730P
150	5	L	M W	5 - 730P
153	5	L	T T	730-10 P

**WINTER QUARTER**

116	5	L	T T	5 - 730P
122	5	L	T T	5 - 730P
150	5	L	T T	5 - 730P
151	5	L	T T	730-10 P
254	5	L	T T	730-10 P

**SPRING QUARTER**

101	5	L	T T	730-10 P
105	5	L	T	5 - 730P
117	5	L	T T	5 - 730P
123	5	L	T T	5 - 730P
152	5	L	T T	730-10 P

**Music**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

141	3	L	F	5 - 730	
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**WINTER QUARTER**

141	3	L	F	5 - 730	
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**SPRING QUARTER**

143	3	L	F	5 - 730	
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**Philosophy**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

101	5	L	T T	730-10 P	
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**WINTER QUARTER**

150	5	L	T T	730-10 P	
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**SPRING QUARTER**

130	5	L	T T	730-10 P	
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**Physics**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

231	5	L	T	4 - 630	
		L	T	4 - 530	
		B	T	530- 730	

**WINTER QUARTER**

232	5	L	M	5 - 730	
		L	W	5 - 630	
		B	W	630- 830	

**SPRING QUARTER**

233	5	L	M	5 - 730	
		L	W	5 - 630	
		B	W	630- 830	

**Political Science**

No.	Crd't.	Sec.	Day	Time	Instructor
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**SPRING QUARTER**

100	5	L	T T	730-10 P	
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**Psychology**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

100	5	L	M W	5 - 730	
		L	M W	730-10 P	
		L	T T	730-10 P	

**WINTER QUARTER**

100	5	L	MTWTF	8	
101	5	L	MTWTF	10	
230	5	L	MTWTF	11	

**SPRING QUARTER**

101	5	L	MTWTF	8	
230	5	L	MTWTF	10	



## Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

101	5	L	M W	730-10 P	
		L	T T	5 - 730	

### WINTER QUARTER

101	5	L	MTWTF	1	
202	5	L	MTWTF	3	

### SPRING QUARTER

202	5	L	MTWTF	1	
220	5	L	MTWTF	3	

## Speech

No.	Crd't.	Sec.	Day	Time	Instructor
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### AUTUMN QUARTER

105	5	L	T T	5 - 730	
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### WINTER QUARTER

110	5	L	M W	5 - 730	
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### SPRING QUARTER

165	5	L	M W	730-10 P	
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## Zoology

No.	Crd't.	Sec.	Day	Time	Instructor
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### WINTER QUARTER

101	5	L	T T	730-10 P	
		L	MTWTF	9	

### SPRING QUARTER

101	5	L	MTWTF	9	
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## NEWARK CAMPUS

## Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
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### WINTER QUARTER

211	5	L	T T	5 - 730P	
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### SPRING QUARTER

212	5	L	T T	5 - 730	
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## Agricultural Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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### SPRING QUARTER

100	5	L	T T	5 - 730	
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## Agronomy

No.	Crd't.	Sec.	Day	Time	Instructor
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### WINTER QUARTER

200	5	L	M W	730-10 P	
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**Anthropology**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

261	5	L	T T	730-10 P	
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**Biology**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

102	5	LB	M W	5 - 730P	
		LB	M W	730-10 P	
		LB	T T	5 - 730P	
		LB	T T	730-10 P	

**WINTER QUARTER**

102	5	LB	M W	730-10 P	
		LB	T T	5 - 730P	

**SPRING QUARTER**

102	5	LB	M W	730-10 P	
		LB	T T	5 - 730	

**Botany**

No.	Crd't.	Sec.	Day	Time	Instructor
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**WINTER QUARTER**

102	5	LB	T T	730-10 P	
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**SPRING QUARTER**

102	5	LB	M W	730-10 P	
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**Business Organization**

No.	Crd't.	Sec.	Day	Time	Instructor
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**SPRING QUARTER**

490	3	L	M W	730-10 P	
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**Chemistry**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

121	5	L	M W	830- 730P	
		RB	M W	4 - 630P	
		RB	M W	730-10 P	
		RB	T T	730-10 P	

**WINTER QUARTER**

122	5	L	M W	630- 730P	
		RB	M W	4 - 630P	
		RB	T T	730-10 P	

**SPRING QUARTER**

123	5	L	M W	6 - 730P	
		B	M W	730-1030P	
		B	T T	730-1030P	

**Comparative Literature and Language**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

101	3	L	F	5 - 730P	
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**WINTER QUARTER**

102	3	L	F	5 - 730	
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**SPRING QUARTER**

103	3	L	F	5 - 730P	
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**Economics**

No.	Crd't.	Sec.	Day	Time	Instructor
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**AUTUMN QUARTER**

201	5	L	M W	5 - 730P	
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**WINTER QUARTER**

402	5	L	T T	730-10 P	
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**SPRING QUARTER**

442	5	L	M W	5 - 730P	
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## Education

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
108	3	L	T F	730-10 P 5 - 730P	
467	3	L	W	730-10 P	
632	4	L	T T	730- 930P	
WINTER QUARTER					
461	3	L	T T	5 - 730P	
502	3	L	M	730-10 P	
511	4	L	T	730-10 P	
SPRING QUARTER					
460	4	L	T T	5 - 730P	
243	5	L	T T	730-10 P	
637	3	L	W	730-10 P	

## Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	3	L	M W	730-10 P	
WINTER QUARTER					
111	3	L	M W	730-1000P	
SPRING QUARTER					
112	3	L	M W	730-10 P	

## Engineering Mechanics

No.	Crd't.	Sec.	Day	Time	Instructor
SPRING QUARTER					
210	5	L	M W	730-10 P	

## English

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	3	L	M W F L M W L M W L T T F L T T	4 5 - 630 730- 9 P 4 5 - 630	
103	3	L	M W	5 - 630	
240	5	L	M W	5 - 730	
290	5	L	M W	5 - 730	
WINTER QUARTER					
101	3	L	M W F L M W	4 5 - 630	
102	3	L	M W L M W L M W F L T T L T T F	5 - 630 730- 9 P 4 5 - 630 4	
260	5	L	M W	730-10 P	
293	5	L	M W	5 - 730P	
SPRING QUARTER					
102	3	L	M W L T T	5 - 630 5 - 630	
103	3	L	M W L M W F L T T L T T L T T F	5 - 630 4 730- 9 P 5 - 630 4	
220	5	L	T T	5 - 730	
261	5	L	M W	730-10	
294	5	L	M W	5 - 730	

## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
111	3	L	M W	730- 9 P	

## French

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	M W F	5 - 630	
104	5	L	M W F	630- 8 P	
WINTER QUARTER					
102	5	L	M W F	5 - 630	



**French (Cont'd)**

## SPRING QUARTER

103	5	L	M W F	5 - 630
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**Geography**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

220	5	L	T T	5 - 730	
		L	M W	5 - 730	

## WINTER QUARTER

240	5	L	M W	5 - 730P	
		L	T T	5 - 730P	

## SPRING QUARTER

220	5	L	T T	730-10 P	
240	5	L	M W	730-10 P	

**Geology**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LB	M W	730-10 P	
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## WINTER QUARTER

101	5	L	T T	730-10 P	
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## SPRING QUARTER

100	5	L	T T	5 - 730P	
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**History**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

103	5	L	M W	5 - 730	
121	5	L	M W	730-10 P	
		L	T T	5 - 730P	

## WINTER QUARTER

104	5	L	M W	730-10 P	
121	5	L	T T	730-10 P	
122	5	L	M W	730-10 P	
		L	T T	5 - 730P	

## SPRING QUARTER

122	5	L	M W	5 - 730P	
123	5	L	T T	730-10 P	
		L	M W	5 - 730P	

**Mathematics**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	M W	5 - 730	
		L	T T	5 - 730	
116	5	L	T T	5 - 730	
121	5	L	T T	730-10 P	
150	5	L	T T	5 - 730	
		L	T T	730-10 P	
151	5	L	T T	730-10 P	
153	5	L	M W	730-10 P	

## WINTER QUARTER

105	3	L	M	5 - 730	
116	5	L	T T	730-10 P	
121	5	L	M W	730-10	
122	5	L	M W	5 - 730P	
150	5	L	M W	5 - 730	
151	5	L	T T	5 - 730	
152	5	L	T T	5 - 730	
254	5	L	T T	730-10 P	

## SPRING QUARTER

101	5	L	T T	730-10 P	
117	5	L	T T	5 - 730	
122	5	L	T T	730-10 P	
152	5	L	M W	730-10 P	
255	5	L	T T	730-10 P	

**Music**

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

191	1	B	T T	4	
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## WINTER QUARTER

191	1	L	T T	4	
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## SPRING QUARTER

141	3	L	T T	730-9 P	
191	1	L	T T	4	

## Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	3	L	T	730-10 P	
WINTER QUARTER					
101	5	L	M W	730-10 P	
SPRING QUARTER					
150	5	L	M W	730-10 P	

## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
231	5	L	T	4 - 530	
		L	T	4 - 630	
		B	T	530- 730	
WINTER QUARTER					
232	5	L	T	4 - 530	
		L	T	4 - 630	
		B	T	530- 730P	
SPRING QUARTER					
233	5	L	T	4 - 530	
		L	T	4 - 630	
		B	T	530- 730P	

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	M W	730-10 P	

## Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	M W	5 - 730P	
		L	M W	730-10 P	
		L	T T	5 - 730P	
		L	T T	730-10 P	
WINTER QUARTER					
101	5	L	M W	5 - 730P	
		L	T T	5 - 730P	

120 3 L M W 5 - 730P

### SPRING QUARTER

120 3 L M W 5 - 730P  
230 5 L T T 5 - 730P  
L T T 730-10 P

## Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	M W	730-10 P	
		L	T T	5 - 730P	
WINTER QUARTER					
101	5	L	M W	5 - 730P	
202	5	L	M W	730-10 P	
SPRING QUARTER					
202	5	L	M W	730-10 P	

## Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	M W F	5 - 630	
104	5	L	M W F	630- 8 P	
WINTER QUARTER					
102	5	L	M W F	5 - 630	
SPRING QUARTER					
103	5	L	M W F	5 - 630	

## Survey Courses in Agriculture

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	1	L	T	730- 930P	ARCHER

**Zoology**

No.	Crd't.	Sec.	Day	Time	Instructor
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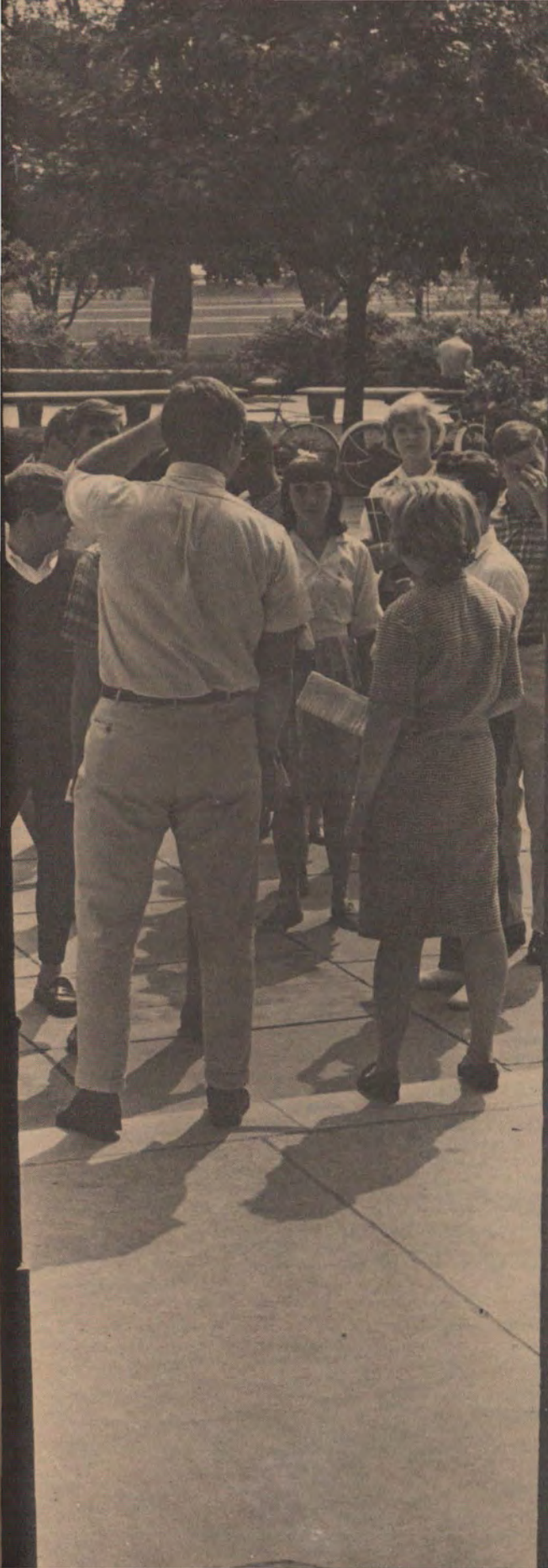
WINTER QUARTER

101	5	L	M W	5 - 730P	
		L	T T	730-10 P	

SPRING QUARTER

101	5	L	T T	730-10 P	
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# University Calendar for 1967-68

## Summer Quarter, 1967

May 1	Last day applications received (Mon.)
May 5	Schedule Cards for Summer Quarter may be obtained in the Registrar's Office (Fri.)
May 8	Schedule cards for Summer Quarter may be filed in the college office (Mon.)
May 20	Last day for filing Summer Quarter schedule cards (Sat. Noon)
June 1	Application deadline — Graduate School students (Thurs.)
June 14	Last day for placement testing (Wed.)
June 15	Last day for completing registration (Thurs.)*
June 15	Last day for payment of fees before classes begin for the First Term and the Quarter (Thurs.)
June 19	Welcome Program for all new students (Mon.)
June 19	Classes begin 8:00 a.m. (Mon.)
July 1	Last day for withdrawal from the University for the First Term with any refund of fees (Sat. Noon)
July 4	Legal Holiday — No classes — Offices closed (Tues.)
July 17	Last day for withdrawal from the University for the Quarter with any refund of fees (Quarter students) (Mon.)
July 24	Last day for payment of Second Term fees before the Second Term classes begin (Mon.)
July 25-26	Final Examinations — First Term (at regular class hour) (Tues. and Wed.)
July 26	First Term ends, 12 Midnight (Wed.)
July 27	Second Term begins 8:00 a.m. (Thurs.)
July 28	Schedule cards available for the Autumn Quarter (Fri.)
July 29	Schedule cards for the Autumn Quarter may be filed in the college offices (Sat.)
August 10	Last day for withdrawal from the University for the Second Term with any refund of fees (Thurs.)
August 28-September 1	Final Examinations for the Quarter (Mon., Tues., Wed., Thurs., and Fri.)
August 31	Last day for filing Autumn Quarter schedule cards (Thurs.)
August 31-September 1	Final Examinations — Second Term (at regular class hour) (Thurs. and Fri.)
September 1	Summer Convocation (Commencement) 9:00 a.m., St. John Arena (Fri.)
September 1	Summer Quarter ends, 12 Midnight (Fri.)

## Autumn Quarter, 1967

July 28	Schedule cards available for the Autumn Quarter (Fri.)
July 29	Schedule cards for the Autumn Quarter may be filed in the college offices (Sat.)
August 1	Last day applications received (Tues.)
August 31	Last day for filing Autumn Quarter schedule cards (Thurs.)
September 1	Application deadline — Graduate School students (Fri.)
September 4	Legal Holiday — Labor Day — No classes — Offices closed (Mon.)
September 14	Last day for placement testing (Thurs.)
September 15	Last day for completing registration (Fri.)*
September 22	Last day for payment of fees (Fri.)
September 25-26	Welcome program for all new students (Mon. and Tues.)
September 27	Classes begin 8:00 a.m. (Wed.)
October 24	Last day for withdrawal from the University with any refund of fees (Tues.)
October 30-31	Schedule cards for Winter Quarter may be obtained in the college offices (A-K on Mon. and L-Z on Tues.)
November 1-3	Schedule cards for Winter Quarter may be filed in the college offices (Wed., Thurs., and Fri.)
November 11	Legal Holiday — Veterans' Day — Classes as usual — Offices open (Sat.)
November 18	Last day for filing Winter Quarter schedule cards (Sat. Noon)
November 23	Legal Holiday — Thanksgiving — No classes — Offices closed (Thurs.)
November 24-25	Student vacation — No classes — Offices open (Fri. and Sat.)
December 11-15	Final Examinations (Mon., Tues., Wed., Thurs., and Fri.)
December 15	Autumn Convocation (Commencement) 9:30 a.m., St. John Arena (Fri.)
December 15	Autumn Quarter ends, 12 Midnight (Fri.)
December 25	Legal Holiday — Christmas — Offices closed (Mon.)

## Winter Quarter, 1968

November 15	Last day applications received (Wed.)
December 1	Application deadline — Graduate School students (Fri.)
December 14	Last day for placement testing (Thurs.)
December 15	Last day for completing registration (Fri.)*
December 29	Last day for payment of fees (Fri.)
January 1	Legal Holiday — New Year's Day — Offices closed (Mon.)
January 2	Welcome Program for all new students (Tues.)
January 3	Classes begin 8:00 a.m. (Wed.)
January 29-30	Schedule cards for the Spring Quarter may be obtained in college offices (A-K on Mon. and L-Z on Tues.)



January 30	Last day for withdrawal from the University with any refund of fees (Tues.)
January 31	
February 1-2	Schedule cards for Spring Quarter may be filed in college offices (Wed., Thurs., and Fri.)
February 10	Last day for filing Spring Quarter schedule cards (Sat. noon)
February 12	Legal Holiday — Lincoln's Birthday — Classes as usual — Offices open (Mon.)
February 22	Legal Holiday — Washington's Birthday — Classes as usual — Offices open (Thurs.)
March 12-16	Final examinations (Tues., Wed., Thurs., Fri., and Sat.)
March 15	Winter Convocation (Commencement) 9:30 a.m., St. John Arena (Fri.)
March 16	Winter Quarter ends, 12 Midnight (Sat.)

### Spring Quarter, 1968

February 15	Last day applications received (Thurs.)
March 1	Application deadline — Graduate School students (Fri.)
March 12	Last day for placement testing (Tues.)
March 13	Last day for completing registration (Wed.)*
March 22	Last day for payment of fees (Fri.)
March 25	Welcome Program for all new students (Mon.)
March 26	Classes begin, 8:00 a.m. (Tues.)
April 22	Last day for withdrawal from the University with any refund of fees (Mon.)
May 3	Schedule cards for Summer Quarter may be obtained in the Registrar's Office (Fri.)
May 6	Last day for filing Summer Quarter schedule cards (Sat. noon)
May 9	Free Day — No classes after 10:00 a.m. — Undergraduate college offices will remain open (Thurs.)
May 18	Last day for filing Summer Quarter schedule cards (Sat. noon)
May 30	Legal Holiday — Memorial Day — No classes — Offices closed (Thurs.)
June 4-8	Final examinations (Tues., Wed., Thurs., Fri., and Sat.)
June 7	Spring Convocation (Commencement) 9:00 a.m., O.S.U. Stadium (Fri.)
June 8	Spring Quarter ends, 12 Midnight (Sat.)

### Summer Quarter, 1968

May 1	Last day applications received (Wed.)
May 3	Schedule cards for Summer Quarter may be obtained in the Registrar's Office (Fri.)
May 6	Schedule cards for Summer Quarter may be filed in the college offices (Mon.)
May 18	Last day for filing Summer Quarter schedule cards (Sat. noon)
June 1	Application deadline — Graduate School students (Sat.)
June 13	Last day for placement testing (Thurs.)
June 14	Last day for payment of fees before classes begin for the First Term and the Quarter (Fri.)
June 15	Last day for completing registration (Sat. noon)*
June 17	Welcome Program for all new students (Mon.)
June 18	Classes begin, 8:00 a.m. (Tues.)
July 1	Last day for withdrawal from the University for the First Term with any refund of fees (Mon.)
July 4	Legal Holiday — No classes — Offices closed (Thurs.)
July 16	Last day for withdrawal from the University for the Quarter with any refund of fees (Quarter students) (Tues.)
July 23	Last day for payment of Second Term fees before the Second Term classes begin (Tues.)
July 23-24	Final examinations — First Term (at regular class hour) (Tues. and Wed.)
July 24	First Term ends, 12 Midnight (Wed.)
July 25	Second Term begins, 8:00 a.m. (Thurs.)
July 30	Schedule cards available for the Autumn Quarter (Tues.)
July 31	Schedule cards for the Autumn Quarter may be filed in the college offices (Wed.)
August 9	Last day for withdrawal from the University for the Second Term with any refund of fees (Fri.)
August 28-30	Final Examinations for the Quarter (Wed., Thurs., and Fri.)
August 29-30	Final Examinations — Second Term (at regular class hour) (Thurs. and Fri.)
August 30	Summer Convocation (Commencement) 9:00 a.m., St. John Arena (Fri.)
August 30	Summer Quarter ends, 12 Midnight (Fri.)
August 31	Last day for filing Autumn Quarter schedule cards (Sat. noon)

\*Except newly admitted Graduate School students. The final date for these students will extend to the last day before the beginning of classes for the Quarter.



## Library Calendar 1967-68

The schedule of hours is subject to change. Consult specific library concerned for further information and summer hours.

### MAIN LIBRARY REGULAR SCHEDULE OF HOURS

#### Autumn, Winter, and Spring Quarters

Monday through Friday	7:45 a.m.—12 midnight
Saturday	8:00 a.m.—10 p.m.
Sunday	1:00 p.m.—12 midnight

#### Summer Schedule

Monday through Friday	7:45 a.m.—12 midnight
Saturday	8:00 a.m.—5 p.m.
Sunday	1:00 p.m.—6 p.m.

#### Between Quarter and Holiday Schedule

Monday through Friday	8:00 a.m.—5 p.m.
Saturday	8:00 a.m.—12 noon
Sunday	Closed

The Department Libraries operate on varying schedules which are posted in these libraries and also in the Main Library.

### SUMMER QUARTER, 1967

June 19	Begin Summer Quarter hours.
July 4	Independence Day—All libraries closed.
September 1	Begin Summer Quarter hours at 5:00 p.m.

### AUTUMN QUARTER, 1967

September 2, 3, 4	Labor Day Weekend—All libraries closed.
September 27	Begin Summer Quarter hours at 5:00 p.m.

November 22	All libraries close at 5:00 p.m., except Health Center and Children's Hospital Libraries.
November 23	Thanksgiving Day—All libraries closed.
November 24	Begin holiday Schedule
November 26	Begin Regular Schedule in Main Library; Department Libraries' hours vary.
November 27	Begin Regular Schedule in all libraries.
December 15	Begin between quarter hours at 5:00 p.m.
December 25	Christmas Day—All libraries closed.

### WINTER QUARTER, 1968

January 1	New Year's Day—All Libraries closed.
January 3	Begin Winter Quarter hours.
March 16	Begin between Quarter hours at 5:00 p.m.

### SPRING QUARTER, 1968

March 26	Begin Spring Quarter hours.
April 14	Easter Day—All libraries follow regular Sunday schedule.
May 30	Memorial Day—All libraries follow regular Thursday schedule.
June 8	Begin between quarter hours at 5:00 p.m.

### SUMMER QUARTER, 1968

June 18	Begin Summer Quarter hours.
July 4	Independence Day—All libraries closed.
August 30	Begin between quarter hours at 5:00 p.m.

### ANCILLARY LIBRARIES—Autumn, Winter and Spring Quarters

	Mon.-Thurs.	Fri.	Sat.	Sun.
Aero-Civil Engr., 322 Civil Aero. Engr. Bldg.	8-5; 7-9	8-5	8-12 noon	Closed
Agriculture, 45 Agricultural Adm. Bldg.	8-10	8-5	9-1	Closed
Botany & Zoology, 200 Botany & Zoology Bldg.	8-10	8-10	8-4:30	2-10
Brown, 103 Brown Hall	8-5; 7-10	8-5	9-12 noon	Closed
Buckeye Village	3-5; 7-11	3-5; 7-11	12 noon-11 p.m.	12 noon-11 p.m.
Chemistry, 310 McPherson Chem. Lab.	8-10	8-5	8-5	2-6
Children's Hospital, 561 S. 17th St.	8:30-9:30	8:30-9:30	9-5	2-9:30
Commerce, 204 Page Hall	8-10	8-10	8-5	2-10
Davis Welding, 200 Industrial Engr. Bldg.	8-5	8-5	9-12 noon	Closed
Education, 060 Arps Hall	7:30-10	7:30-10	8-5	2-10
Electrical Engineering, 162 Caldwell Lab	8-5; 7-10	8-5	8-12 noon	Closed
English Dept., 15-15C Derby Hall	8-5; 7-10	8-5	9-12 noon	Closed
Health Center, 101 Hamilton Hall	8-10	8-10	8-5	2-10
Home Economics, 325 Campbell Hall	8-10	8-5	8-12 noon	Closed
Law, 219 Law Bldg.	7:45-12	7:45-12	8-10	1-12
Materials Engr., 197 Watts Hall	8-5; 7-10	8-5	9-12 noon	Closed
Mathematics, 010 Mathematics Bldg.	8-10	8-5	8-12 noon	Closed
Microbiology, 7 Microbiology Bldg.	8-5; 7-10	8-5	9-12 noon	Closed
Music, 101 Hughes Hall	8-10	8-5	9-4	2-10
Orton, 100 Orton Hall	8-5; 7-10	8-5	9-5	2-6
Pharmacy, 207 Pharmacy Bldg.	8-5; 7-10	8-5	9-12 noon	Closed
Physics, 202 Physics Bldg.	8-10	8-5	8-5	Closed
Pomerene-Women's Physical Education, 307 Pomerene Hall	8-5; 7-10	8-5	Closed	Closed
Social Work, 400 Stillman Hall	8-10	8-5	8-5	2-10
Topaz, 114 Optometry Bldg.	8:40-11:30 12:30-5	8:40-11:30 12:30-5	8:40-12 noon	Closed
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Garage and Laundry	R7
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308 Admin. Bldg.		T8
Vice President for Research	352 Admin. Bldg.	T8
Vice President for Business and Finance		
200 Admin. Bldg.		T8
Vice President for Educational Services	201 Admin. Bldg.	T8
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Executive Dean for Admissions and Registration		
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Executive Director for University Relations		
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Optometry	111 Optometry Bldg.	S12
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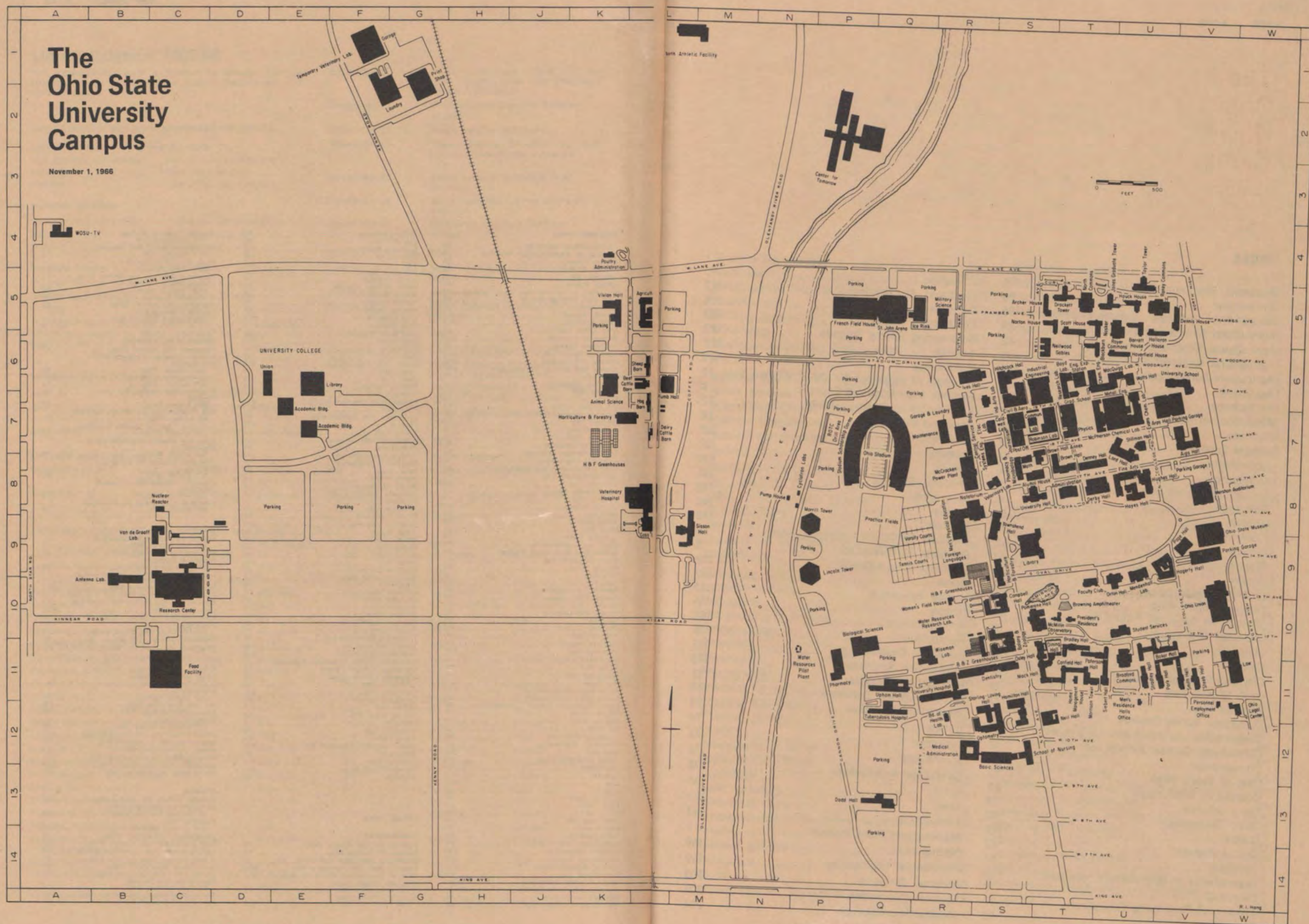
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# The Ohio State University Campus

November 1, 1966





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### **The Ohio State University**

Columbus, Ohio, 43210, Telephone 293-3148 (Area Code 614).

Mail for specific members of the Board of Trustees and the Administration should carry the following general address:

The Ohio State University, 190 North Oval Drive, Columbus, Ohio, 43210.

Administration offices are open Monday through Friday from 8 to 5 and Saturday from 8 to 12 noon.

### **Offices for Specific Information**

Office of Admissions

102 Administration Building, 190 North Oval Drive, Telephone 293-8412

Office of the Bursar

200 Administration Building, 190 North Oval Drive, Telephone 293-2812

Office of Continuing Education

109 Administration Building, 190 North Oval Drive, Telephone 293-4209

Office of the Dean of the Graduate School

137 Graduate School Building, 164 West 19th Avenue, Telephone 293-6031

Office of the Executive Dean for Student Relations

105 Administration Building, 190 North Oval Drive, Telephone 293-2051

Office of the Registrar

203 Administration Building, 190 North Oval Drive, Telephone 293-7941

Office of Student Financial Aids

200 Student Services Building, 154 West 12th Avenue, Telephone 293-6916



Instructions for Adviser Approval Form

The Adviser Approval Form is provided for use by students whose colleges require adviser approval of academic programs. Since Autumn Quarter 1967 schedules must be returned prior to August 31, 1967, this form is to be used in obtaining approval of programs prior to the summer vacation period when the student and or his adviser may not be on campus. Only one form need be used unless the adviser or college requests two.

The student should meet with his adviser to decide on an instructional program, complete the form in ink, and have his adviser sign where indicated. The student will keep the completed Adviser Approval Form and include it with his Autumn Quarter registration materials available after August 1, 1967.

Students having questions concerning the form or its use should check with their adviser or college office.

All students enrolled in Graduate School and the College of Agriculture and Home Economics are required to submit the Adviser Approval Form with their Autumn Quarter schedules.

Do not send the Adviser Approval Form in advance of registration cards!

Name \_\_\_\_\_ Student Number \_\_\_\_\_  
Last First Middle  
Major \_\_\_\_\_ Program of Courses for \_\_\_\_\_ Quarter, 19 \_\_\_\_\_

Department	Course Number	Credit Hours	M	Tu	W	T	F	S

Approved Alternate Courses	Substitute			For	
	Department	Course Number	Credit Hours	Department	Course Number

Program Approved \_\_\_\_\_ Adviser's Signature \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Student Number \_\_\_\_\_  
Last First Middle  
Major \_\_\_\_\_ Program of Courses for \_\_\_\_\_ Quarter, 19 \_\_\_\_\_

Department	Course Number	Credit Hours	M	Tu	W	T	F	S

Approved Alternate Courses	Substitute			For	
	Department	Course Number	Credit Hours	Department	Course Number

Program Approved \_\_\_\_\_ Adviser's Signature \_\_\_\_\_ Date \_\_\_\_\_

ADVISER APPROVAL FORM Complete in blue or black ink

ADVISER APPROVAL FORM Complete in blue or black ink

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### **Books in the 1967-68 Announcements Series**

- 1** General Information for Undergraduates
- 2** College of Agriculture and Home Economics
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- 12** College of Pharmacy
- 13** College of Veterinary Medicine
- 14** University Academic Policies and Course Offerings

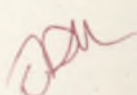
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Admissions Office  
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190 North Oval Drive  
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